Understanding the influence of psychological, social and spiritual levels on physical health: An *informational* approach

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In order to understand how psychological, social and spiritual dimensions affect physical health we need a theory that is much more broadly based than conventional «biomedicine». Our model of the human must employ the language of information science, since «mind» and «spirit» are informational, not material, concepts. Current research and clinical experience with psychosocial and spiritual methods lead us to the conclusion that it is time to advocate such adjunctive care for most people with cancer or other chronic diseases. «Meaning» in disease and responsibility for health is discussed as well as the relevance of pursuing a spiritual (self-transcending) path both for patients facing death and for professionals working with them.

Much has been written about the limitations of the reductionist approach to understanding health and disease. My main aim is to suggest a model or way of thinking that is more integrative, and allows us to incorporate *mind* and even *spirit* into our theories and our therapy.

My particular field is the effects of mind on cancer. Here we are faced with the questions: how could an intangible thing like mind affect a concrete object like a tumour? How can we address this experimentally? How to conceptualize the problem? What is *mind* anyway? And at a practical level, is there an opportunity to help patients through an adjunctive psychological route?

I would like to start on a personal note. After migrating to Canada as an immunologist 16 years ago I became interested in yoga and in self-understanding. I discovered, among other things, that we largely create our own reality, and wondered if this might have health implications. Because I was employed at a large cancer treatment and research centre, I began working, under supervision, with cancer patients, trying to help them cope better and fight their disease. I trained and registered in clinical psychology, and shifted my research to investigate how adjunctive psychosocial interventions could help cancer patients. In the literature I found some evidence for an impact of mind on disease, in such areas as placebo research, biofeedback and psychosomatic medicine: these findings seemed to be generally ignored by medicine. For cancer, around 1980, the evidence for a mental effect was minimal, although there was no lack of anecdotes

about remarkable remissions. As I worked with patients I began to see a few patients who did unexpectedly well, and that, while effects of medical treatment could not be ruled out in most of these people, the physical effects seemed to be related to profound psychological change.

Part of my search for understanding these phenomena led me outside the orthodox medical and scientific community. I discovered - as I'm sure many of you have known for a long time - that there are some very interesting people, sometimes called *healers* or by other names, who have a great store of wisdom. I've found that while relevant knowledge is not all to be found within orthodoxy by any means, there is also clearly a lot of uncritical and wishful thinking in the counter-culture that has to be by-passed. I've explored some of the avenues of various spiritual disciplines, gone to workshops, taken therapy, sat at the feet of anyone I thought had something to teach me. Added to this, I had some post-doctoral experience, quite unplanned, in the shape of a serious cancer of my own six years ago, whilst immersed in this work, and my response to that was to intensify the kind of work on myself that I had been teaching patients, and to go to a spiritual retreat for three months. In that time I learned a great deal about the subject through introspective work. So my views that I will express today come from several sources: from the clinical experience of having run quite a large cancer out-patient clinic now for about twelve years; from my own experience with the disease; and from the orthodox literature and the scientific side as well.

To guide my research and therapy I felt I needed two things: First of all, and most important perhaps, I needed a *theoretical scheme*. How could health be affected by mind? If that's really true, how can we conceptualize it? There is very little to guide and help us, and while there are a lot of ideas in the *New Age* literature, they tend to be foggy, unfocused and exaggerated, although sometimes helpful. The second thing I needed was some sort of plan for the *experimental work* and I decided to do intervention studies and learn as I went along. So I started very gradually in this work with the cancer patients, trying to make sure to do no harm and to learn what helped people by experience. Our first experiments were with brief group therapy, and the tests were for improvement of quality of life. But I always wanted (and now I'm beginning) to move to seeking effects on the length of life. Not because it's more important, perhaps, but because it's more dramatic and has more chance, it seems to me, of effecting a change in biomedical thinking. That phase of our research is just beginning. I can tell you what we're doing, but I don't have much in the way of results yet.

My contribution is in three parts. The main part is to present a theory trying to incorporate the effects of mind and spirit on disease. Then I thought you would

be interested just to see, very briefly, something about our programmes with patients. And lastly, at the end, I would like to come back to a more philosophical issue: Is there any meaning in the experience of a serious disease? How are we to understand that?

Theoretical ideas

We can do a little diagram of the broad pathway of events that might connect a mental state with cancer. In response to an environmental change we might have cognitive and affective behavioural changes in the subject. The central nervous system will be involved and via neuro-endocrine pathways will affect the periphery, and some of the systems shown here. They can be local effects on cancer regulating mechanisms, for example immunological or growth factor hormones, which can affect tumour growth and thus affect survival.

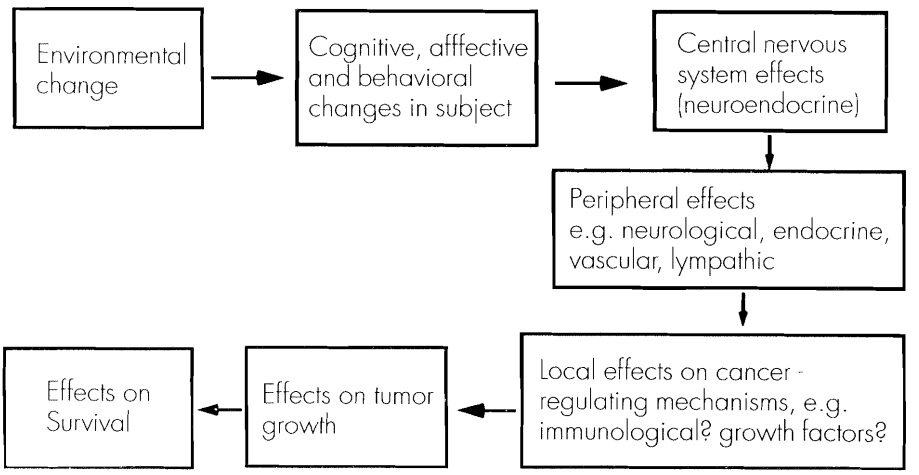


Fig. 1: Broad pathway of events connecting mind and cancer

Now, where do we start on the pathway in *Fig. 1*? Different disciplines tend to do different things, don't they? An epidemiologist might try to connect that first box in *Fig. 1* with the last box. A person interested in psycho-neuro-immunology might try to connect the second box with the fifth box. But it's very difficult to get a handle on the whole.

I think you can see it doesn't make much sense to choose one level of analysis, such as, for example, the biochemical level, which is popular, and try to understand the whole process in those terms. We need different levels of explanation.

So what would happen if, instead of being reductionists, we stood back and tried to generate a theory that would connect all of the levels? What sources can we draw on to derive such a theory? Well, we can go back to the ancient Greeks, particularly HIPPOCRATES and others with their ideas about *balance and harmony* and how they are important for health. We find the same kind of ideas in Eastern philosophy: in *Hinduism*, for example, mind is primary and matter is considered to be a more concrete manifestation of mind. From more modern western sources, we can draw on general *systems theory*, *semiotics*, and on *psychosomatic medicine*.

Fig. 2 shows a convenient starting point for this kind of thinking; you've all seen diagrams like this.

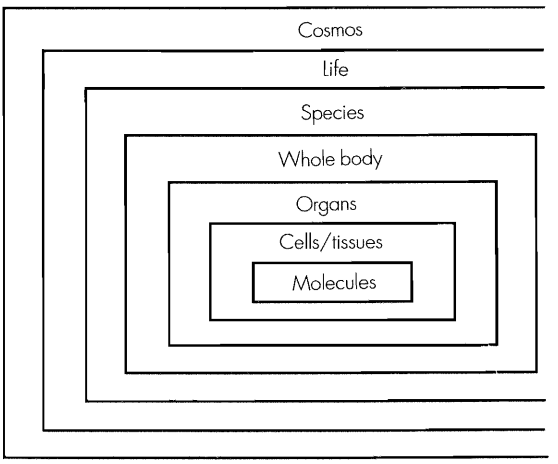


Fig. 2: Principal structures identified by science

It is a structural model or map of the human organism. From atoms and *molecules* - at the most simple level - through *cells*, *organs* and the *whole body*: this part I've encased in a box, in accordance with the usual convention that we stop at our skin, which of course we do not; then we move out through the *species, life in general* and the *cosmos*. The important thing about this diagram, which you will have seen from the writings of people like GEORGE ENGEL (although in this part of the world there was a lot of earlier writing from others like ADOLF MEYER offering similar models) - the important thing about it is that it is a **hierarchy.**

Each level is subsumed under or included in the ones above. Any effect on any level of this diagram affects all other levels. A mutation in the DNA can affect a person's social life, for example. And more interestingly, being laid off from your

job can affect what happens in your heart and your biochemistry. These are commonplace observations. The *Zen* poets put it very nicely, they say: «Cut a blade of grass and shake the universe». I think *chaos theories* have some similar offerings. This model - the ENGEL type model - however, lacks something; it lacks mind, and of course it lacks spirit - no matter that hardly anyone in the orthodox biomedicine tries to deal with spirit.

What are we going to do about that? This brings me to, I suppose, the central and most important point. It's one I always find the most difficult to explain, so I hope you'll bear with me.

There are at least two ways of looking at that map or at a human being. There are two **languages** if you like. I'd like to introduce the second language which will be familiar to many of you, but perhaps not to everyone. This is the language of *information* or *pattern* - or the way things are arranged not just what they are made up of.

Here's another human being (see *Fig. 3*):

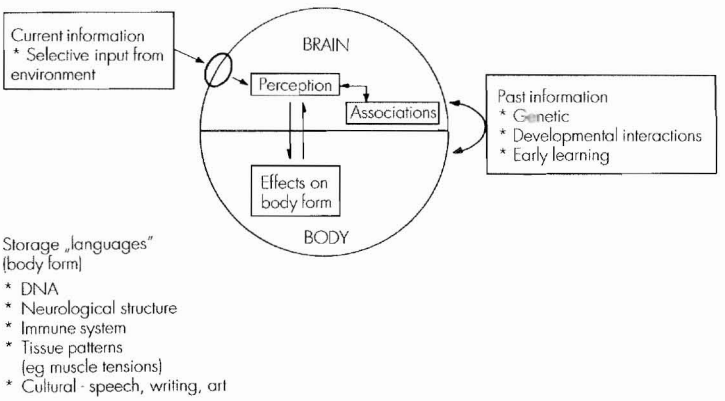


Fig. 3: Informational aspects of brain-body-world interaction

From her environment, through her sense organs here, she is getting a lot of information. What is being transmitted here is not material! There is a little energy transmission, but it's very slight. It's largely *information*, it's a sense of *pattern*. That sense connects with *memories* and has effects on the *body form*. So, if someone calls out to you an insulting phrase, that can have a tremendous effect on your body form. It can be worse than a blow, as we all know. The body stores information in languages. The brain is very familiar - it's an information processing apparatus. But there are many others. The *genetic store* - the DNA - is familiar to

us. The *immune system* is very much an information processing mechanism, and its analyses are done in terms of information rather than material. There are others: patterns of tissues - you can get a callus or a change in muscular structure. That's information of a crude kind.

We human beings differ from other animals in that we have a cultural transmission as well - so that information can be recorded outside of ourselves and passed on to others. If we had to draw a computer analogy here, we might say that the information content is the software and the material content is the hardware. We all use word-processing programmes. We can describe these as a series of little metallic discs - which wouldn't be very helpful - or we can describe them as a series of algorithms or operations that we would do. That would be an informational description that would be far more useful to most of us for most purposes.

It's my thesis here that we have largely ignored the informational side of human beings. I know HANNES PAULI (see his contribution on p. 179) would bear me out, as he has written on this topic. We've concentrated on substance - to the relative neglect of pattern, perhaps. Let's come back to the structural diagram *(Fig. 4)*.

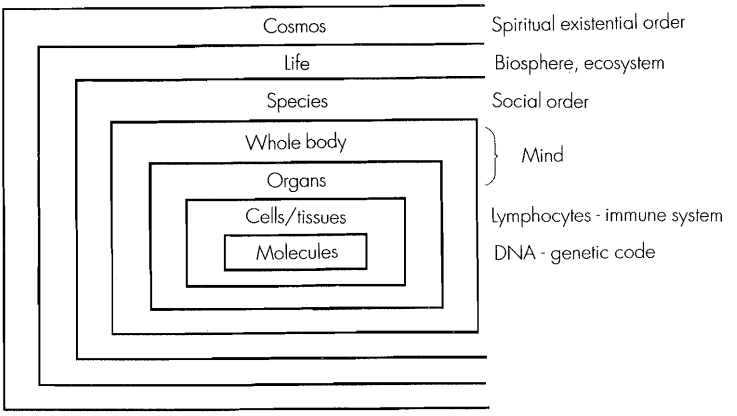


Fig. 4: Principal structures and some informational correlates

Can we add informational terms to that diagram? When I tried to draw this a few years ago I ran into a great deal of trouble because there isn't much; I had to make up terms. What we can do is look at some examples. At the *molecular* level, for example, at the DNA; here the physical substance is material and the genetic code is the informational correlate and, as you see, far more interesting to most of us. Unless you happen to be a physical chemist you're likely to be interested

only in the way in which the DNA is arranged. For *species* the informational correlate might be social order. As an immunologist I was always very aware that there were many immunocompetent cells circulating in the body. But what was fascinating about them was the information they carried on their surface - the immune receptors. Now the *brain* - here's where we come to mind! I understand, of course, that philosophers have debated concepts of mind for centuries and that there are different views. What we are concerned with here is pragmatics - at least I am - and I want a way of understanding what's happening in patients! So I'm going to adopt a monistic view of *mind* and *brain*, one that most neurophysiologists would endorse, i.e. mind is something that develops out of the complexity of the brain. In other words: mind is the software of the brain. I don't say that's right - I don't know if it's right - but I do say that it is useful! So when the mind has an *idea* - an idea is two things: An idea is a shifting of material in terms of neurochemical transmission etc. in the brain, but an idea is also a cognitive construction, isn't it? Purely *pattern*; and not necessarily connected with particular materials. I don't know if I'm labouring this too much for some people, I apologize if I am. But I have noticed that the concept is difficult sometimes to get across. Those are the main things I want to say about it, except to add a personal view - and again a useful heuristic kind of idea on what *spirit* may be. One way of conceptualizing spirit is as the order or pattern associated with the *cosmos* as a whole. So, *mind* is the pattern of *brain*; and *spirit* is the pattern of the *cosmos*; spirit is mind's big brother. I find this a helpful aid to my thinking.

Every level in *Fig. 4* has both *material* and *informational* characteristics, and we can describe every event in either language. What passes between levels tends to be information rather than material. To go back to the example of someone losing a job - the *social* level. It's a symbolic event, largely, that may have profound effects, of course, on that person's whole body, on the mind. Such people may become depressed; they may have a heart attack; they may commit suicide. It is an example of a purely informational event having a profound physiological effect. I'm not claiming originality for these ideas, I should hasten to add. There have been writers in psychosomatic medicine, like HINCKLE and MILLER who have put forth similar ideas. There have been, particularly in the Germanic tradition, writers like VON UEXKÜLL, PAULI and others who have tried to bring these rather semiotic ideas into biology and medicine. Again, it's been largely ignored, I would say, by mainstream medicine. An excellent book written by FOSS and ROTHENBERG in 1987 deals with this, also, and talks about a new medical paradigm which they call *info-medicine*.

So now, what I hope we have here is a simple model that includes pyschological, social and spiritual terms. We can use it to frame hypotheses about health and disease. Certain patterns in this map will favour health and certain patterns will favour disease; and some of the observations will be material and some of them will be informational. There are many possible hypotheses one could make about which patterns favour health and which favour disease - and as you think about it you may have your own. I want to propose one such hypothesis.

This hypothesis is that health is promoted by connectedness, which I see as optimal information flow between all the levels of the person (see *Fig. 5*). It's a slightly more precise notion - at least, it holds out some hope of measurement and operationalizing - slightly more precise than the *New Age* idea that all has to be in balance and in harmony, or for that matter, the old Greek idea. You'll see this idea in a lot of writings, but usually in very general form. It has some face validity, and what I like about it is that you can apply it over the whole range from *molecule* to *spirit*, if you like, and you see that disconnectedness does by and large tend to favour disease and connectedness does tend to favour health. *Blood flow* or *neuro-transmission* are necessary at the cellular level for the cells to survive, but when the cells are cut off from their hormone regulators - this can be done experimentally - you tend to get tumours.

- **Health : optimal connectedness (information flow) between levels**
- **Disease : promoted by disconnectedness :**
  - **cells/blood flow and innervation → death**
  - **cells/hormonal regulators → cancer**
  - **self/not-self differentiation inadequate → auto-immune disease**
  - **conscious/unconscious mind → neurosis, psychosis**
  - **individual/group alienation → disease, sociopathy**
  - **social group/world → environmental destruction**
  - **individual/spiritual → lack of meaning**

Fig. 5: An «informational» view of health and disease

The immune system is a wonderful example of the necessity for connectedness; if the immune system is not connected up right - if it doesn't know what's self and not self - you get autoimmune disease. Non-optimal connection between conscious and unconscious in either direction leads to trouble; too much

suppression of unconscious material and affect will lead to a deficient personality - neurosis perhaps; too much stuff coming up from your unconscious can lead to psychosis. Moving up to the *social* level: When the individual is alienated from the group you tend to get disease - physical disease even, and other problems like sociopathy. You take one nation and isolate it from the rest of the world - and we see many examples of that - and you'll tend to get wars and international strife. And when a social group is disconnected from the environment we tend to get destruction of that environment. Finally, some might say that when the individual is alienated from a meaningful spiritual structure you get *anomie*, lack of meaning, existential angst etc. So this model could begin to serve as a guide for therapy. Some of the implications of following this line of thinking in terms of working with people with physical disease can be formulated as follows:

- «Informational» therapies can be expected to influence physical disease.
- It is rational to undertake therapy at all levels in the hope of affecting cancer progression.
- The aim is to strengthen connectedness, i.e. awareness of needs and how to supply them, at all levels.
- Ultimately, the search for connectedness becomes a quest for meaning of disease and of life.

I'm thinking of cancer patients, but I'm sure it's applicable to others. It makes some sense; it's not irrational to think that an informational therapy could affect a physical disease. In fact it's rational - so it seems to me - to undertake therapy at all levels, social, spiritual, psychological. The aim would be to strengthen connectedness, i.e. for the patients to strengthen their awareness of all of their levels, and of the needs that these levels have, and how to supply them. Ultimately, that search for connectedness becomes a quest for meaning of disease and life, and I'll come back to that point at the end. I hope we can see that this connectedness idea is common sense and evident in many aspects of life, not just health. For example, a large organisation must have an adequate flow of communication between its levels; if one individual - a manager - decides he's going to set up in isolation from the rest of his company, he's not going to help himself or the company very much. *Allopathic* medicine tends to be «bottom-up», doesn't it? And what we're groping for here, I think, is some rationale for applying «top-down» - psychological, social, spiritual - therapy; the higher level therapy acting on the lower levels - the disorders of the body.

Let me summarize this part of my talk:

- Living things are multilevel structures.
- All structures have two qualities: material composition **(hardware)** and information/organisation **(software)**.

- All changes necessarily involve all levels and both qualities. Informational change affects material.
- Psychological and biological determination work together and are not mutually exclusive.

How does this translate into clinical practice with people with cancer?

Programmes for patients, and experimental designs

We have a number of programmes for people who have cancer. Our most basic one is 6 - 7 sessions, each session being two hours long, usually held once a week - or it can be held over a weekend. *Fig. 6* shows some of the things we teach. *Stress* is a very acceptable word and its control is very much sought after by most people these days. So, we talk about stress control and we teach *relaxation*, give people books and tapes to take home and practice. Then we use *mental imagery* for healing. We teach people to visualize their cancer and their immune system attacking it. There is not yet much evidence for the efficacy of this approach, but it provides a sense of being able to do something, and that in itself is valuable. Then, we do standard psychological things like teaching *goal setting* and *problem solving*, and we try to help people model their *communication skills* by small group empathic work, ventilation of emotion, and sharing.

Orientation night : questions and answers
Week 1 : Stress and relaxation
Week 2 : Deep inner relaxation
Week 3 : Mental imagery for healing. Managing thoughts and emotions
Week 4 : Developing your own mental imagery. Positive affirmations
Week 5 : Defining goals. Problem solving
Week 6 : Taking control of our lives. Communications skills.

Fig. 6: Basic coping skills training programme

Let me say a little more about the imagery because it's intriguing to people who haven't used these techniques themselves. We would typically start by showing people pictures of a cancer cell being assaulted by an army of lymphocytes. And then we will do a relaxation - people imagining being in a safe place - then ask

them to imagine what their own cancer looks like, and what they imagine their immune system looks like, and how they can «see» their immune system, using the word very loosely, attacking and reducing their cancers.

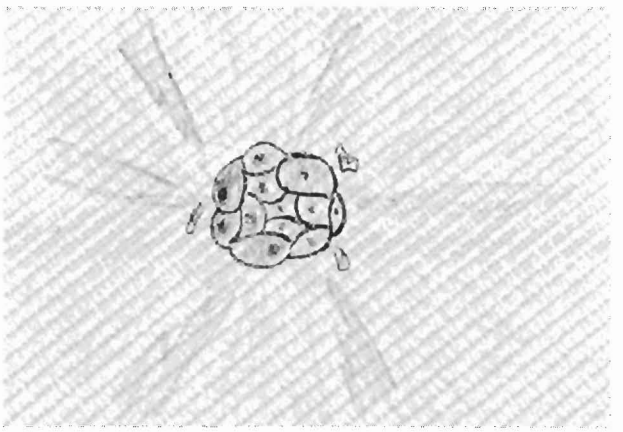


Fig. 7: Drawing by a patient

Fig. 7 was drawn by a young woman with a very serious pelvic cancer; you don't need any experience in this field to see the reaction she had in her mind to her cancer. A great deal of pain and distress, and a sense that the thing was invulnerable to any kind of treatment whether medical or psychological. And indeed, she died shortly afterwards.

An architect - who was a bit of an artist - had a lymphoma that was affecting his right arm particularly, and he has drawn something going on that looks about to consume his whole being. He told me that he was fishing while his arm was being eaten away. This kind of picture can tell you something, and in a very direct way, about what the patient thinks and feels about his/her disease; it serves as a good starting point for further discussion.

A lady who had breast cancer lived in the St. Lawrence Gulf. From her house she could see the *Baluga* whales going up and down the Gulf. On her picture she was in a hammock - a very peaceful scene, and that is the impression she gave when she talked about it. It was a good image which does reflect the harmony and peace in this lady. Indeed, she did very well. That's not to say there was any necessary cause or connection with the psychotherapy, but she did very well, she changed her career, went back to school, and became a therapist herself - that is a pattern one sees quite often. The work on the self leads not so much to a wish to help others, as an inability to avoid trying to help others, and that's what happened to her.

Another picture is from one of the most remarkable people I have seen: a woman with metastatic breast cancer with wide-spread metastases. She really liked the idea of the imagery and she absorbed all the descriptions of the different immune cells - natural killer cells, T-cells, activated macrophages, and a little thing in the middle which is the cancer cell - and she produced a number of such pictures, with collages and all sorts of things. Her cancer practically disappeared. She became healthy again after staying with us for a few weeks; then she went back to her home town and started her own groups - she had enough information! Eventually, she died of something else. However, she was getting some chemotherapy; although nobody expected it would cure her, I don't really feel that one can be sure of the correlation between her psychological change and healing. It's just a probability, at best.

Our programmes all have a research aim, and we have tried to address quality of life as an outcome as formulated in the following **research questions:**

A. Can quality of life be improved?

1. Does brief group intervention improve quality of life?
2. How does quality of life correlate with the coping skills training?
3. Are there intermediary psychological mechanisms in such a possible correlation?
4. Which patient group is helped?
5. What is the place of the different forms of intervention?

B. Can progress of disease be affected?

We have shown in longitudinal studies that quality of life can be improved in a lasting way by this simple kind of group programme. We have compared the quality of life improvement that you get with a coping skills programme against support alone, because people feel better if they just sit and chat. And we find a two-fold greater increase when you add the teaching of specific coping skills. It's very interesting to ask: How does this help? What intermediary mechanisms - particularly, psychological mechanisms - could mediate this quality of life improvement? The two that we have looked at are *perception of control*, using a specific instrument for that, and indeed, there's a high correlation between improvement with group therapy and an improved sense of control. The other one we've looked at is how much *homework* people do: a very embarrassing result, there was no correlation whatsoever, which is not what we expected; which is, I suppose, why you do research! Just the fact of having something to

do seemed – in my interpretation – to be more important than actually doing it. We have done a large study to find out which patients were helped, which I won't go into. We've looked at different forms of the intervention and found that different ways of presenting the material, and different leaders, are equally helpful.

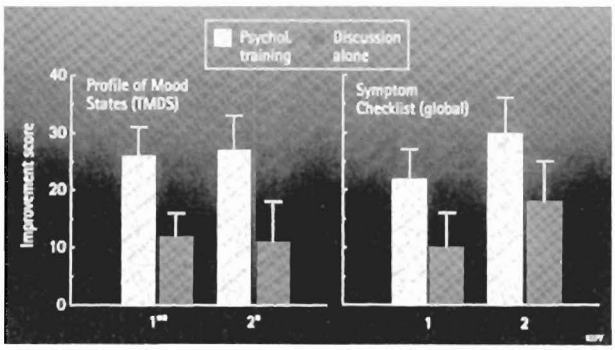


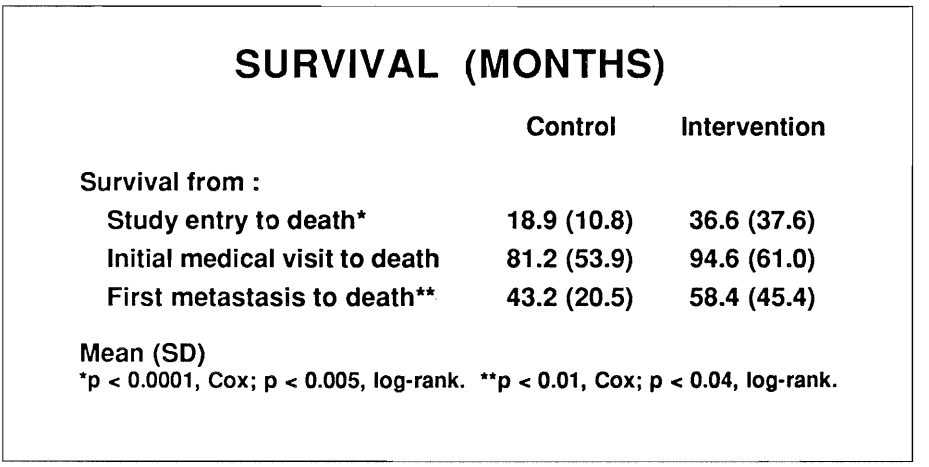
Fig. 8: Comparison of effects of group discussion alone with group discussion plus psychoeducational training

Fig. 8 shows the data of a randomized controlled trial comparing coping skills training with support alone. Two instruments have been used to assess quality of life improvements, at tho different times after each intervention. The taller bars are results with coping skills training, and the shorter bars, with support alone. As you can see, there is a consistent difference.

This idea that mind might affect cancer still tends to be treated with some derision in certain quarters. There is, however, quite a lot of evidence: the mind, which we know by now, can have quite profound effects on the immune system. The new subject of psychoneuro-immunology has been documenting that, in so far as the immune system affects cancer (which might not be very far for most kinds of cancer), a very pleasing sort of mechanistic connection can be made. There is also a great deal of evidence from animal stress studies: there's no question that mental state in experimental animals can affect the rate of tumour growth. A lot of human personality studies are pretty controversial, but it does appear from them that repression of emotion is a risk factor in cancer development and progress.

Then, of course, the most convincing evidence would be intervention trials. If you believe this idea, that mind affects cancer, why not do a therapy and show

that life is prolonged. There are now two such good studies from the United States.



Spiegel et al. Lancet 1989; II : 889

Fig. 9: Survival in breast cancer patients with and without support

Fig. 9 shows the results of the SPIEGEL, BLOOM and YALOM study which most of you will know. It has been widely commented on and agreed to be methologically sound. SPIEGEL and his colleagues randomized women with metastatic breast cancer into a support group, which meant once a week for a year, or no support, just standard care; survival time was doubled by the therapy! A remarkable result: no drug can do that. One has to be cautious in that it was a fairly small experiment. It needs repetition, and we are among the groups in North America who are currently trying to replicate this.

FAWZY and colleagues in Los Angeles studied *stage I melanoma* patients in a randomized controlled trial. Half of them received a coping skills programme - essentially very like ours, just a six week programme - while the other half did not. At six years, 10 died in the controls and 3 in the treated group, a significant result. Very promising; it starts to look as if there might be something in this idea.

As I said, we're currently doing an approximate replication and extension on a bigger scale of the SPIEGEL study, funded by the MRC (Medical Research Council) of Canada. So we have a similar population of metastatic breast patients. We are giving an intervention which is similar to his, but adding some cognitive behavioural work, and we will be looking at medical outcome at five years. This kind of experiment, as is being widely discussed in this book, is the way to show

whether or not there is an average effect of a treatment on a variable like lifespan. It has its limits, of course, as is obvious to you, I think. You never know which individuals have had an increase in lifespan, you only know for the group, and furthermore you don't know what has gone on in people. There must have been something that has gone on in some of those women to have enabled them to live longer. What is that? I would like to know.

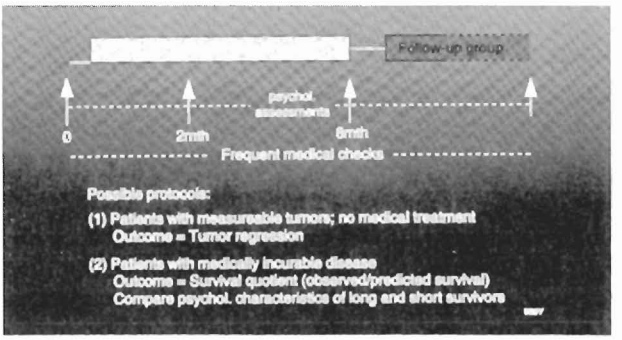


Fig. 10: Outline for studying effects of psychological intervention on cancer progression

For that you need a correlative design. Now, for some years, I have been piloting the study outlined in *Fig. 10*, starting to get serious about it now, and writing grant requests - not yet funded. What I'm trying to do is to get patients with measurable cancer who are not getting a confounding medical treatment; there are some of those. Then to work with them, with all of the psychotherapy we know how to do, in groups, and do psychological assessments as we go along, and have close medical monitoring at the same time. A prospective longitudinal design. We look for the occasional people - of whom we've seen some over the last twelve years - who have remissions. An actual shrinkage of the tumour would become the endpoint. Then we will go back to the audio-tapes of the interviews and go back to the psychological instruments and see if we can put together the psychology and the physiology. That's a very hard experiment to do, obviously, and depends on there being a sufficient percentage of therapy subjects, say 5% or more, who will show an effect. I don't know if it can be done, but I do believe it's worth trying, because I think it's the only way we can get hard information on what exactly is going on with this mentally assisted healing.

Does disease have meaning?

Patients, of course, will ask us, or may not unless we question them, but they will be thinking: Why did this happen to me? I'm a good person, why did I get this rotten disease? Was it just an accident? That's an almost intolerable idea, isn't it? Or is it significant in some way; how can I make sense of it? I think we all ask ourselves this of any catastrophic event. EINSTEIN's question is relevant here, he said: «The most important question is, is the universe a friendly place?» If it is not, we are in trouble. If it is a friendly place, as most would like to believe, why the hell did I get cancer? Or worse, why did my child get cancer? Different traditions give different answers to this questions. The materialist will say - at least in his professsional guise - there's no meaning, these are biochemical events, cancer is a genetic accident. Not a very comforting conclusion, but still the current fashion I would guess. Psychoanalysts have a different answer; they may say - at least they did in the fifties or sixties: it is an expression of an unconscious conflict projected into the soma; he had a problem, he didn't want to deal with it mentally, so he got a cancer instead! WOODY ALLEN says something similar. A spiritual healer may have a different answer. He will say: It's God's will, it is all part of a divine plan, you don't know what that is, but you are watching it being played out in your body! So each of these perspectives, perhaps, has something to offer as some part of the truth. But none of them has all of it. They are different levels of explanation.

We began with a model that tried to connect all the parts and to bring into our understanding and into our therapy, not just the body, but the mind, the social and spiritual levels. How would we answer this question if we have that model in the back of our minds? Well, in our systems view, every structure or event - an event is just a structure in motion - every structure has information content. And the meaning of each structure, I would suggest, is to be found in its relation to all other structures. The meaning of a piece of information - when you think about it - is really: How is it connected up with everything else?

If we just look at an event - maybe it's a cancer, maybe it's a thunderstorm - and we don't see connections to anything else, then we talk about chance. The primitive says that thunderstorm is due to chance because he doesn't understand meteorology. Once we begin to connect it to something else, we say: Ah ha, there is a cause to this, A causes B, because we reproducibly observe A before we observe B. It is still not a comprehensive explanation; it's like one slice through an orange, isn't it? Meaning is found - I would suggest - when we try to connect something with everything in the universe. An impossible task! But it's an ideal that one might work towards. It's interesting if you think about cancer this way; our understanding is still at a primitive level, we still tend to think of it as an

accident. That just means we don't understand the connections. You will be familiar with this idea when you think about mental function. The meaning of a fact, or a sensation, is its relationship to everything you've experienced in the past, isn't it? It means nothing in isolation. A person means nothing in isolation, really. I think cancer is the same, and cancer has a meaning - as does any event, in relation to everything else that's happening in that person's life, has happened, and will happen, both before and after, at all levels. If you say: That's going too far! If you say, No!, cancer has no meaning, then what I suggest you're saying is that your life has no meaning. I sometimes say that to patients who are open to this kind of discussion, as an idea to reflect upon. If cancer has no meaning, then what does? So how do we translate this into the clinic?

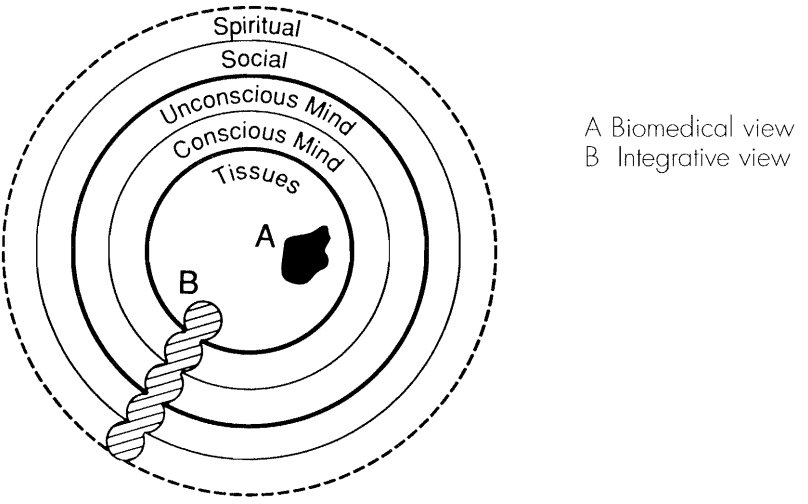


Fig. 11: Two different concepts of understanding the onset of cancer

In our eductional work with patients we will often use the simple diagram in *Fig. 11*, which is just some of the levels that we have looked at already, and say: *A* is the way how cancer has been viewed, just a lump in the body, no connection to anything else! *B* is another way to look at it, like one of those party balloons, and it has a bulge in it at every level. The good news is that you can affect it by working at any level, you can stick a pin in it anywhere and you can collapse it in the body perhaps. We suggest that the direction of therapy is to try to increase connectedness between all of the levels, and we have very specific techniques for trying to encourage them - some of which I've talked about.

So healing becomes the search for meaning, or the experience of meaning, perhaps better. The search for the experience of meaning at all of these levels of

ourselves; and the question, How can I heal?, becomes the same as the question: Who am I?

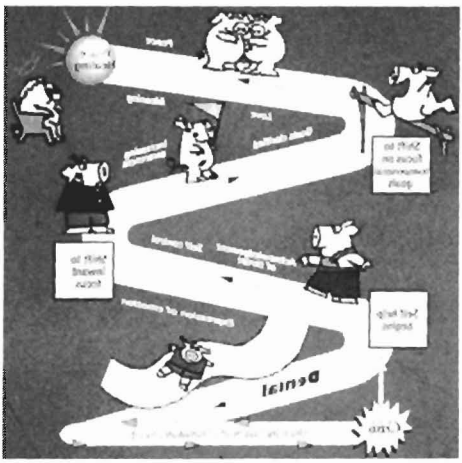


Fig. 12: The healing journey

The developmental pathway of healing that I have begun to use in working with some patients (those most dedicated to self-help) is shown in *Fig. 12*. Our ordinary living patterns are fairly automatic or unaware. The advantage of a crisis like cancer is that it gives us incentive for change, for self-help, so the self-help journey may begin. It may progress for a little while; and then the person may slide back into denial and may not even get off the ground, because its too painful to think about change for many of us. But if the threat can be acknowledged, and that's a critical step for us to take, we can then begin by learning some self-control strategies, and that can be a rather rewarding time for people who undertake this work. Ah ha, there is something I can do, I can change the way I feel, the way I look at things, my hopes about this situation; no, I'm not being unrealistic, but I can do something, I'm not just passive. Then for some people this will shift to a focus on increasing awareness for its own sake. I see this as the second leg of a journey. Healing the cancer, now, is not the main aim; the aim becomes getting connected for its own sake. Goals have to be clarified, some of the obstacles in ourselves have to be confronted. As we all know, it's difficult and can be a long job. Again, for some of these people, the focus will then shift to a third leg - to transpersonal goals. By that I mean goals outside the individual concerned with other people or concerned with the spiritual dimension. People may get closer to the significance of their lives. Some will tend to find meaning in social interactions, and put more time into

them; they also might get nearer to God or however they conceptualize that. And of course, the work one does has to be non- religious and non-dogmatic. But by teaching methods like meditation, internal dialogue with an inner healer, and by having people write a life story and present it, meaning at this level will often emerge. Healing in a broad sense can occur even when the disease is progressing, and people, I've noticed, will often die much more peacefully if they have made some progress along this path. They will often have paranormal experiences, for example out-of-body experiences, and other interesting things which may happen, particularly near the time of death. People die in relative peace of mind, and death itself becomes much less fearful as people move towards it. There is greater acceptance: I'm sure if KÜBLER-ROSS had been here she would have talked about acceptance as the ideal final stage of growth before death.

I'm sometimes told: Well that's fine, you're working with motivated patients, an unusual group; you should see the patients I have to deal with. They couldn't do this! But I think this progress is possible for most people although not perhaps for everybody. It's not difficult in principle. It's not easy in practice, of course! With the right kind of encouragement, instruction and help, I think most people can move along this pathway and be helped by doing so. The therapist himself or herself ideally needs to be involved in some search for meaning in his or her own life, to give this whole process integrity.

In terms of the scientific agenda, then, the aim is to describe this pathway, this healing journey, using the kind of model I have suggested. The long term aim is to arrive at some sort of developmental path of healing. Something analogous perhaps, to the stages of moral development of KOHLBERG, or even the development of intelligence in children by PIAGET. I think we badly need that kind of systematization of what happens in healing because all we have at the moment is a lot of *New Age* speculation.

To summarize, there is meaning in relationship between events, and symptoms have meaning. A symptom is a dynamic structure with information content that has meaning in its relationship to everything else that's going on. Healing comes from the effects of information from a larger system, from the higher dimensions on affected parts. Another way of saying that - a phenomenological way of saying it, perhaps - is that healing comes from the experience of meaning, and therapy, according to this kind of model, is ultimately the discovery of meaning and trying to experience one's relationship to a larger order.

Further reading

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