

## WHAT IS “HEALING”? : REFLECTIONS ON DIAGNOSTIC CRITERIA, NOSOLOGY, AND ETIOLOGY

Jeff Levin, PhD, MPH

This article examines the conceptual history and contemporary usages of the term “healing.” In response to long-standing definitional ambiguity, reflections are offered on what are termed the diagnostic criteria, nosology, and etiology of healing. First, a summary is provided of how healing has been defined within medicine. Second, the dimensionality of healing is discussed. Third, healing’s putative determinants are outlined. For biomedicine, healing mainly concerns repair of wounds or lesions and is unidimensional. For complementary medicine, by contrast, healing has been defined alternatively as an intervention, an outcome, and a process—or all of these at once—and is

multidimensional, impacting multiple systems from the cellular to the psychosocial and beyond. Notwithstanding these usages, a review of medical texts reveals that healing is rarely defined, nor is its dimensionality or determinants described. Persistent lack of critical attention to the meaning of “healing” has implications for medical research and practice.

**Key words:** healing, natural history, etiology, nosology, diagnostic criteria

(*Explore* 2017; ■■■■■ © 2017 Elsevier Inc. All rights reserved.)

What is healing? This probably seems like an odd question. The concept of healing and the word itself are ubiquitous in medicine and healthcare. In both biomedicine and the field of complementary and alternative medicine (CAM), the term is invoked frequently. It appears, on occasion, in the title of peer-reviewed articles in the most prestigious medical journals—over 200, in fact, within the past four decades in official journals of the American Medical Association, and hundreds more if counting mentions in abstracts. It appears as a keyword or indexing term throughout the medical literature—a PubMed search on the term “healing” turned up, at the time of this writing, over 190,000 publications dating back to 1872. Yet, despite these usages, what do we really know about healing? One article laments:

We all know that healing is something good, something that we want, for ourselves and for our clients, but no one has ever satisfactorily explained just what it is, how it happens, and how to get there. There could be no more worthy scientific enterprise than finding answers to these fundamental questions about healing. Yet, for all the writing on this topic, both popular and scholarly, there is still considerable confusion.<sup>1(p302)</sup>

Within Western biomedicine, the concept of healing has a precise, generally agreed upon meaning. It refers to the curing of disease or restoration of health among medically ill individuals or populations. In formal terms, it is an outcome of secondary-preventive actions directed at people who have crossed the clinical horizon within the pathogenic stage of the

natural history of disease and have presented symptomatically. Healing thus designates successful movement in a salutogenic (rather than pathogenic) direction, one’s clinical or epidemiologic status reverting back from diseased to not diseased. This represents the ultimate goal, stated or unstated, of most therapeutic interventions.

Notwithstanding these acknowledged conceptual parameters, the word “healing” rarely appears in contemporary medical textbooks, and where it is used in medical journal articles it generally has a much narrower construction. The term is invoked mostly in reference to adhesion or granulation of a focal lesion, such as a dermal wound or a fracture or an ulcer of some kind. Moreover, most biomedical research which explicitly references a concept termed healing has tended to follow this perspective for as far back as current biomedical journals can be searched.

In contrast is the prevailing conception of healing found in the growing scientific and popular literatures on alternative health-related topics such as CAM, mind-body medicine, consciousness research, spirituality and healing, and holistic and New-Age medical practices. In these arenas, the term healing is invoked frequently, yet is almost never defined and is confusingly conceived of alternatively or, worse, simultaneously as an intervention, an outcome or state, and a process. This disturbing trend was described:

To some, healing is an intervention, as in Therapeutic Touch or Reiki. Healing is something done by healers—a therapeutic modality delivered by a practitioner to a client. To others, healing is an outcome, such as recovery from illness or curing of a disease. As a result of treatment, whether conventional or alternative, we hope to experience a healing. To still others, healing is a process—for example, Antonovsky’s concept of

Baylor University, One Bear Place # 97236, Waco, TX 76798  
e-mail: jeff\_levin@baylor.edu

salutogenesis. When the pathogenic process is halted, we then ideally may begin healing—moving from a state of disease to a state of renewed health.

In some unfortunate pieces of writing, healing is all three of these things at the same time. Healing is something practiced by healers that initiates a healing process so that we may obtain healing. All things to all people, healing, so used, as a construct for systematic research is thus close to worthless.<sup>1(p302)</sup>

In the CAM field, moreover, regardless of its definition (or non-definition), healing as typically invoked possesses two other notable characteristics. First, healing is usually asserted to be multidimensional, expressing itself at various “levels”—physical, bioenergetic, emotional, mental, spiritual, interpersonal, societal, cosmic, etc. One may obtain or experience physical healing, emotional healing, spiritual healing, and the like. Second, the salutogenic process which engenders (or is) healing is usually conceived as multifactorial—as having multiple antecedents or determinants, analogous to the epidemiologic concept of diseases of multifactorial etiology. Many different things—different concepts, variables, factors—are said to cause or lead to healing. These twin assertions—multidimensionality and multifactoriality—are supported primarily by hypothetical presumptions or anecdotal observations, or are taken for granted, rather than validated by systematic empirical findings or postulated theoretical or etiologic models.

An interesting situation thus presents itself.

On the one hand, biomedicine has a clear definition of healing, and a narrow, circumscribed usage. The word “healing” designates a concept primarily referencing the repair of a flesh or tissue wound. Healing is thus considered unidimensional—that is, conceptually limited to the repair of wounds—though multifactorial in antecedents. Yet the word “healing” itself is rarely used, nor is there anything like a defined field of basic or clinical research devoted to salutogenesis or healing-as-a-process. Indeed, most physicians may make it through medical school and postgraduate education with little exposure to the word “healing” or the underlying concepts, other than in reference to closing of a wound.

On the other hand, the CAM field has been much looser with the term “healing.” It appears to mean whatever anyone wants it to mean. By consensus, it (whatever it is) is almost universally acknowledged as multidimensional and densely laden with antecedents. The word is used all the time, in myriad settings, and, within the context of spiritual healing, is nominally invoked in empirical research studies regularly, although such studies remain controversial and most are not very sound. Alternative practitioners, moreover, use the word “healing” ubiquitously—again, in its multitude of tenses—but few have posited a reasoned definition.

There is much here to reflect upon, and a conceptual history of “healing” with special reference to contemporary usages is long overdue. Since words come to mean simply what general agreement would have them to mean, we are not interested here in deciphering the “true” meaning of the English-language word healing, such as through deconstructing its etymology. This has been done expertly elsewhere,<sup>2</sup> and the origins of the word are also well documented.

According to the *Oxford English Dictionary*, the first uses of “healing” as a noun, designating “restoration to health; recovery from sickness; curing, cure,” date to appearances in the *Gospel of Nicodemus* (c. 1000) and *Cursor Mundi* (c. 1340); the first medical use dates to an appearance in *Lanfranc’s Science of Chirurgie*, vol. 68 (c. 1400).<sup>3(p53)</sup> Rather, the goal here is simply to trace the recent conceptual history of healing, in its multiple contexts, and to bring a modest sense of order to a topic that, to now, has been confusing and not adequately documented. In so doing, we hope to make the case for healing as a reasonable topic for basic and applied research in clinical, laboratory, and population-based settings.

A central theme of this article is that programmatic research on healing has long been inhibited by (a) the conceptual narrowness of the prevailing usage (or, rather, non-usage) of “healing” in medicine and biomedical science, coupled with (b) the lack of conceptual clarity among those in the CAM field who have been more interested in issues ostensibly related to a broader take on healing. In other words, biomedicine has been conceptually clear about what it means by healing yet has not generally recognized this phenomenon or process as systemic or multidimensional, while proponents of CAM generally have acknowledged a multidimensionality and multifactoriality of something which they refer to as healing yet remain perpetually muddled with respect to an actual definition.

This is more than just a semantic issue. The words that we use, how we language things like healing—our implicit definitions and conceptual models—ultimately drive the questions that we ask and how we go about answering them. Were the word healing reserved for the more circumscribed usage, but in the broader context, then we would be better prepared to undertake systematic investigation of the salutogenic or healing process. This matters, as research on the process of healing promises to expand our understanding of how ill people become well and how states of disease become states of health, among both individuals and populations. Medical and healthcare research, so focused on the pathogenic process, must be better equipped conceptually and theoretically in order to focus on healing. Clarification of conceptual issues surrounding healing is a critical first step in jump-starting a science of salutogenesis. This in turn can valuably inform efforts to model what has been termed the natural history of health,<sup>4</sup> a theoretical counterpart to the familiar and pathogenically based natural history of disease.

In elaborating upon these ideas, this article addresses the following issues, what metaphorically might be termed the “diagnostic criteria,” “nosology,” and “etiology” of healing. Too much should not be read into this metaphor—it is not meant to be taken literally—but it does provide a useful starting point for a much needed conceptual unpacking of healing. By invoking these concepts an effort will be made to discuss how healing has been defined, to describe the various circumstances under which it is believed to manifest, and to identify its presumed “causes” or antecedents, to the extent to which this is possible in light of present knowledge. More to the point, this article seeks to establish what healing is and what it is not—conceptually speaking—and why this matters.

First, a review is provided of *definitions* of the concept of healing (its “diagnostic criteria,” if you will) taken from recent editions of authoritative medical dictionaries and leading textbooks in multiple medical specialties. These prevailing usages are then contrasted with those of representative writings on healing from within the CAM field and by authors who have addressed the topic of spiritual healing.

Second, the *dimensionality* of healing (its “nosology”) is described. According to the consensus of contemporary CAM writing on healing, the concept of healing designates a multidimensional process occurring at numerous levels (i.e., from the cellular to the organic to the psychosocial and beyond). Healing is also said to operate as an integrated and dynamic process. If so, three hypothetical possibilities are proposed for how these multiple dimensions or levels of healing might interact—separately, step-sequentially, or synchronously.

Third, potential *determinants* of the healing process (its “etiology”) are discussed. Outlined are the many factors ostensibly associated with successful therapeutic outcomes, recovery, and salutogenesis across the many dimensions of healing, according to proponents of the concept. Also noted is how therapies, mainstream or CAM, are often formulated with a unitary focus—addressing a particular etiologic factor, usually in relation to only a single outcome representing a single dimension of healing. By contrast, a revised understanding of healing consistent with broader definitions of healing might encourage us to develop therapies that are multifactorial and systemic.

### “DIAGNOSTIC CRITERIA”: DEFINITIONS OF HEALING

So, again, the question is posed: what is healing? Upon close inspection, two distinct approaches to answering this question can be identified. One, which we might term the classical approach to defining healing, is based on prevailing usages within biomedicine, both clinical practice and the basic sciences. The other, which can be termed the alternative approach, derives from usages found within the CAM arena and within discussions from substantive areas even further afield, such as among New-Age writers and in the literature on spiritual healing. These two approaches, as will be apparent, are dramatically divergent and have little in common.

### Classical definitions of healing

The first and most obvious places to look for usages and definitions of the word “healing” are in medical dictionaries and pathophysiology textbooks. Up-to-date and comprehensive medical dictionaries provide a reliable indicator of prevailing conceptual trends and standard usages within medicine and medical science. The best pathophysiology texts offer the most trustworthy summary overview of those concepts that are seen as pertinent to the nuts and bolt of the disease-making, and presumably disease-unmaking process. What does a review of these resources tell us about healing?

To begin, an examination was made of recent editions of the major medical dictionaries. These included leading English-language medical dictionaries, as well as several other

prominent medical and healthcare dictionaries. The results are pretty consistent.

According to Stedman’s, healing is “Restoring to health; promoting the closure of wounds and ulcers.”<sup>5(p892)</sup> Dorland’s concurs: “1. a process of cure, 2. the restoration of integrity to injured tissue.”<sup>6(p825)</sup> Likewise Taber’s: “The restoration to a normal mental or physical condition, especially of an inflammation or a wound. Tissue healing usually occurs in predictable stages ...”<sup>7(p1076)</sup> Black’s states, simply, “See WOUNDS.”<sup>8(p317)</sup> Other nursing, allied health, and healthcare dictionaries are mostly in agreement. For example, Mosby’s gives a lengthy two-part definition which mirrors the others just listed, the primary definition being “1. the act or process in which the normal structural and functional characteristics of health are restored to diseased, dysfunctional, or damaged tissues, organs, or systems of the body.”<sup>9(p809)</sup> Similarly, McGraw-Hill defines healing as “The process of returning to a previous state of health,” noting, too, that “the term is often used by alternative medical practitioners.”<sup>10(p286)</sup>

We see here the two standard usages noted in the introduction to this article: healing as the recovery from disease and healing as the closure of wounds. In both instances, healing is defined as a process—not as an intervention (as in the work of “energy healers”) nor as an outcome (as in an equation of healing with the word “cure”). Throughout these dictionaries, the former usage (e.g., as in faith healing) is sometimes included as a secondary or supplemental entry which also makes use of the word healing, but is never included under the primary definition of the term. The latter usage (healing-as-outcome) does not appear at all.

Healing-as-a-process suggests something akin to the concept of salutogenesis, proposed by Antonovsky<sup>11,12</sup> as an alternative to the concept of pathogenesis. Whereas pathogenesis names the process of disease-making, depicted by movement of a person or population through the stages and phases of the well-known natural history of disease, salutogenesis names the process of restoration or recovery, depicted by movement through the stages and phases of what has been termed the natural history of health.<sup>4</sup> In sum, healing, as defined by the most prominent medical dictionaries, is about the restoration of health or of structural or functional integrity to a previously diseased or wounded body part or organ system or whole person.

Pathophysiology textbooks are mostly consistent with this usage. In the most recent editions of a representative group of textbooks used in medicine and nursing, “healing” is indexed, but textual discussion is limited to the repair of wounds. In Robbins and Cotran, there is an index entry for healing, but it points to material on wound healing in a chapter entitled, “Inflammation and Repair.”<sup>13</sup> In Hammer and McPhee,<sup>14</sup> healing is not indexed, but the text includes plenty of material on the healing of wounds. In McCance and Huether,<sup>15</sup> a popular text for nurses, there is an index entry only for “wound healing.” In none of these texts is the broader usage of healing as the curative or restorative process from disease observed. Within the basic biomedical sciences, if these texts are an indication, “healing” means the closing up of an open wound and little else.

What about the clinical practice of medicine? How has healing been conceived of here? A similar perusal of leading textbooks in both internal medicine and family practice was undertaken in order to identify usages of the word “healing” and references, if any, to the concept. Among leading internal medicine texts and most family practice texts, there were no index entries for “healing” to be found. For internal medicine, this included the most recent editions of Harrison’s,<sup>16</sup> Goldman-Cecil,<sup>17</sup> and Oxford.<sup>18</sup> Within these texts there were modest to extensive discussions of the healing of wounds, under various headings. Among family practice texts, including Rakel and Rakel,<sup>19</sup> Taylor,<sup>20</sup> and Freeman,<sup>21</sup> some discussion of wound healing was offered, in multiple contexts, but in Rakel and Taylor the term was not indexed. Family practice texts, on the whole, compared to internal medicine texts, were more inclined to feature brief material on healing in the sense of recovery from illness.

Another place where it was anticipated that the concept of healing might possibly be invoked is within textbooks of public health, preventive medicine, and epidemiology. Granted, public health is about promotion of health and prevention of disease across populations, and epidemiology, the basic science of public health, is usually defined as study of the distribution and determinants of morbidity and mortality in populations. Healing is thus not a concept that typically appears in the goals and objectives of public health or preventive medicine programs, nor as an outcome in epidemiologic investigations. At the same time, the overarching concern with improving the health status of people and populations and with focusing on the needs of whole persons rather than fragmented organ systems suggested that this might be a place in which healing is at least broached and discussed.

This presumption was wrong. In none of the most recent editions of selected popular textbooks of public health, preventive medicine, or epidemiology that were surveyed does healing appear in the index. These include Maxcy-Rosenau-Last,<sup>22</sup> Oxford,<sup>23</sup> and Jekel’s<sup>24</sup> among major public health and preventive medicine texts. In none of these books is healing defined or described—neither in the index nor in the text. Among leading epidemiology texts, this same absence of material on healing is observed.<sup>25–28</sup> Nor is healing addressed even in infectious disease epidemiology texts.<sup>29–32</sup> Among leading infectious disease texts directed to clinical subspecialists, rather than to epidemiologists, there is some brief material on wound healing, naturally, but the word healing is not listed in the index.<sup>33,34</sup> By all appearances, “healing” is not a concept that has, or ever has had, any traction in these fields, outside of a requisite need for basic instruction on wound repair among infectious disease doctors.

The paucity of definitions and descriptions of healing in so many texts juxtaposed with usages of “healing” in so many journal articles is intriguing. Perhaps the definition of healing is so well known and so precisely conceived (i.e., in terms of wound healing) that extended discussion of healing is seen as unnecessary or superfluous—akin to the flow of blood through the circulatory vessels or the movement of air in and out of the lungs. What is there really to say? This is a

mistaken notion, but a prevalent one, perhaps. Or maybe the concept of healing is tacitly held not to have much broad-based clinical relevance and is thus ignored or taken for granted. Yet this does not explain the usage of the word “healing,” repeatedly, in the write-up of nearly 200,000 published medical studies. Certainly, the idea of healing means something to somebody and implies things that cannot be captured by any other word or concept.

### Alternative definitions of healing

One place in which “healing” does indeed mean something—although just what that is remains muddled—is the field of CAM. By the prevailing usages of the word and its implied conceptual boundaries, it is as if CAM—at least when it comes to healing—were an alternate universe with little connection to the thinking and presumptions of biomedicine. The biomedical and CAM perspectives on healing have little in common. For one, as noted in this article’s introduction, there is the conceptual imprecision of writing on healing—the confounding of healing as an intervention, process or a state, and outcome. There is also the very special (and extra-muddled) case of spiritual healing, which itself suffers from a cacophony of usages.

Careful and scholarly efforts have been made to bring greater organization, rigor, and precision to these alternative conceptions of healing. Dossey reported on the findings of a national consensus conference on definitions and standards for healing research.<sup>35</sup> Healing was defined here as the “physical, mental, social, and spiritual processes of recovery, repair, renewal, and transformation that increase wholeness, and often (though not invariably), order and coherence.”<sup>35(pA11)</sup> Note how much more expansive this reads than simply wound healing. More recently, Zahourek<sup>36</sup> expanded on the usages of “healing” in CAM contexts. She also acknowledged, “The term ‘healing’ itself may be a challenge to those holding conventional understandings of physiological processes. The term is used in diverse contexts in the popular and professional literature.”<sup>36(p6)</sup> The religious or spiritual component or dimension of healing is implicit in these contexts, indicating a process of salutogenic movement toward “wholeness of the human spirit.”<sup>37(p16)</sup>

Consulting leading textbooks of CAM also proved helpful. The concept of healing is explicitly invoked in all of them, although not necessarily along with a definition. In Micozzi, there are numerous indexed entries and subentries on the topic of healing, only one of which touches on wound healing. In the text, the word healing appears over 70 times, in numerous systemic and domain-specific contexts including as distinguished from curing.<sup>38</sup> In Mosby, results are much the same, with even more uses, especially in a spiritual context.<sup>39</sup> In Pizzorno and Murray,<sup>40</sup> healing is indexed in many ways and appears in the text in dozens of places, in multiple contexts (natural healing, wound healing, spiritual healing, healing relationships, healing crisis, healing vs. curing, and more). In Jonas and Levin,<sup>41</sup> to add another twist, healing is not indexed, but the book includes chapters on “Spiritual Healing,” “Qigong,” and many non-Western healing systems, and dozens of appearances of “healing” in the

text. While there is not much in the way of consensus, one point is clear: in the CAM world, “healing”—whatever it may be—refers to something more than the closing up of physical wounds.

This heterogeneity of meanings is mirrored in published scientific articles in the CAM literature, according to a search conducted of the NLM’s Complementary Medicine Subset on PubMed. Nearly 10,000 English-language human studies listed in this Subset matched on the subject term “healing,” dating to 1946. Of the 100 most recent citations (at the time of this writing), dating to 2015, 21 articles used this term to refer to healing in the context of an intervention (mostly related to a spiritual, energy-related, or other CAM modality), seven used healing to refer to an outcome (mostly from pastoral or nursing sources), and 72 used the term in reference to the process by which an intervention ideally precedes a positive outcome (almost all in the context of wound healing). Among published peer-reviewed studies, as opposed to textbooks, wound healing thus remains the most prevalent usage of “healing” even within CAM.

A non-systematic search of books in fields associated with CAM turned up results similar to the CAM textbooks rather than the peer-reviewed research literature. It was non-systematic in the sense that the present author began with his personal library of over 300 books on these topics. Perusal of dozens of the most popular volumes on mind-body medicine, human consciousness, holistic health, and related New-Age medical topics found that healing is used much more frequently in these fields in the context of an intervention, as in reference to therapies such as energy healing or other forms of touch healing and to the professional role of healer as one who performs something called healing. A recent review of over 100 published sources also has summarized the breadth of alternative definitions of healing,<sup>42</sup> but nearly two-thirds of these definitions centered on healing-as-a-process and about one-third on healing-as-an-outcome. Relatively few treated healing as an intervention or therapeutic modality.

A subset of the CAM literature involves the special case of spiritual healing. Throughout the literature on this subject, the multiple conflicting usages of “healing” seem to be especially confounded. For example, sometimes “spiritual healing” means the use of religious or spiritual methods, such as prayer or energy work, for purposes of repairing or making whole the body or mind.<sup>43,44</sup> This is the most typical usage in in the CAM field and among New-Age and energy healers. Other times it means the experience of having received help for a spiritual problem or an issue related to one’s spirit or soul or attaining an evolved or fully realized relationship with God or the divine, whether in a traditionally religious or a metaphysical context.<sup>45</sup> Yet other times it refers to the dynamic process of spiritual growth or self-actualization. There are many representative examples of this, often describing or explaining the spiritual healing process in relation to various arcane concepts, whether theological or cosmological—for traditional religious healers,<sup>46</sup> or having to do with, say, the *chakras* or subtle bodies—for New-Age healers.<sup>47</sup> A recent work treats this subject in an especially clear and scholarly fashion.<sup>48</sup>

In some discussions, spiritual healing is referenced in each of these ways at once, often haphazardly but on occasion, usually in esoteric contexts, with considerable insight. In one such discussion of the work of spiritual healers, the spiritual healing process is detailed in terms of human bioenergetic systems, emphasizing the experience of spiritual healing in one’s life.<sup>49</sup> It is with reference to spiritual healing that one is especially liable to encounter healing referenced in all its tenses simultaneously—as an intervention, an outcome, and a process. The most comprehensive and scholarly take ever published on healing, in all of these usages, is found in the collected works of Daniel J. Benor, notably his multi-volume *Spiritual Healing*.<sup>50</sup>

Besides creating substantial challenges for scholarly engagement of this subject, such multiple and competing usages are problematic for a different reason. The imprecision in languaging healing serves to marginalize and stigmatize what is actually quite an interesting topic. For sure, there is the lurid aspect of this subject. “Spiritual healing,” for many medical professionals, connotes fraudulent faith healers of both the televangelist and psychic variety. But the phrase is also valuably used as a descriptor in myriad psychotherapeutic, psychospiritual, and bioenergetic systems, including credentialed forms of bodywork, as well as in ministry and pastoral care.<sup>51</sup> The connection between faith and healing, generally, has a solid naturalistic foundation theoretically,<sup>52</sup> as well as more empirical support than biomedical scientists and clinicians may realize.<sup>53</sup> Regardless, if the narrower, and admittedly contentious, issue of spiritual healing remains fringe among scholars and scientists, no matter a potentially substantive value, then its proponents have mostly themselves to blame. There is a price to pay for playing fast and loose with words and concepts and for laxity in defining what it is that one is about.

### The demedicalization of healing

An interesting observation is that features of the respective classical and alternative definitions of healing have managed to become merged within popular usage. Concomitant to Crawford’s<sup>54</sup> famous observation of the “medicalization of everyday life,” the language of healing is now a ubiquitous metaphor used to commandeer the discourse on non-medical problems (e.g., family dysfunction, hurt emotions, disrupted cognitive patterns, spiritual malaise, unsatisfying life styles, friendships gone bad, poisonous work environments, and ideological discord) by redefining them as wounds whose treatment can be rationalized and professionalized and thus best be defined and delivered by experts in particular modes of healing or therapy. Further, because the subpopulation which has allowed it to become so medicalized would seem to overlap with that involved in CAM and other health-related alternatives, this self-help idiom has bled over into discourse on actual medical illness as well. This has served to engender a further layer of confusion in usages of “healing” in specifically biomedical contexts.

Healing is now referenced in relation to concepts that have nothing to do with medicine, disease, pathogenesis, or medical therapeutics. That much is plain. But “healing” is not just invoked in non-medical contexts. It is also cited in

reference to the healing of discrete medical conditions, as well, yet in its neologistic sense rather than in its stricter, more traditional wound-healing sense. This can lead to confusion in efforting to elicit commonalities in understandings of what healing is and to what end it serves. The use of “healing” applied to clinical phenomena is thus becoming as mixed up as its applications elsewhere.

For example, imagine a case presentation of gastric ulcer. Is “healing” the word that describes the treatment received by one’s primary care physician, by a gastroenterologist or, alternatively, by a practitioner of hands-on energy healing? Is “healing” the word that denotes the ideal end result of treatment, medical or surgical, whereby the ulcer is repaired, the patient is no longer symptomatic, and the disease is thus deemed cured? Is “healing” the word that stands for the salutogenic process by which the stomach tissue is eventually restored to its normal state, such as through a course of antibiotics or other medication? Or, as the present author has heard asserted many times at CAM conferences, are these competing usages “all just the same thing”? This recalls the quotation cited at the beginning of this article: healing is what is done by healers in order to elicit healing through the healing process. If this were merely a semantic issue, then it might be an amusing curiosity. But it is not.

Philosophical schools of medicine and healthcare—and CAM in the United States could perhaps be considered such a school—are more than just rational accommodations to ostensibly empirical observations. In a fascinating discussion, Baronov noted that biomedicine is not simply a scientific enterprise. It is also simultaneously a “symbolic-cultural expression” and an “expression of social power.”<sup>55</sup> As such, its putative foundation in objective scientific principles “conceals an ideological agenda ... that reflects structures of power and privilege.”<sup>55(p235)</sup> The same might be said of CAM. Each of these schools defines and reflects a worldview and psychic grid—a lens through which medical reality is viewed and interpreted and made sense of, for the ultimate purpose of reinforcing the hegemony of the respective school as an arbiter of said reality. This is not necessarily done out of conspiratorial malice; indeed, this phenomenon may be all but invisible to most earnest practitioners.

In the CAM worldview, and in fairness this is a generalization, a kind of “individualistic, victim-blaming ideology”<sup>56(p775)</sup> has been observed. The determinants of one’s health and the pathways to restoration of health are primarily matters of individual responsibility.<sup>57</sup> Indeed, health itself may be viewed principally, or solely, in terms of the status, functioning, or even feelings of individual bodies or body–mind complexes. This is in contrast to the prevailing understanding of health and its determinants found within public health, for example, whereby health is considered a communally experienced phenomenon impacted by social-structural characteristics and political and economic realities and expressed in terms of population-wide rates of morbidity, mortality, and disability. Actions to restore health, in turn, encompass both the individual and the collective, such as policy-level interventions focusing on efforts to reduce inequities in access to healthcare. Not so for some corners of CAM, where one may

observe an obsessive self-absorption with one’s physical appearance and functioning as the ultimate markers of well-being, quality of life, even a just social order. Crawford<sup>54(p365)</sup> described this as the elevation of health to a “super value, a metaphor for all that is good in life,” resulting in “the privatization of the struggle for generalized well-being.”

“Healing” thus has become a default label for the restoration of goodness and righteousness in every human sphere, a concept that evokes a positive emotional response and near universal endorsement and thus comes to mean whatever anyone wishes it to mean applied to any setting. So we end up with emotional healing, environmental healing, healing of relationships, and all the rest. Healing seems to have taken its place alongside words like change, progress, hope, and choice as consensus social and political ideals. To be clear, this is not meant to disparage the intentions behind this usage, nor uses of these other fine words. But surely something is being lost: the soul of a word, healing, that ostensibly stands for a substantively significant and under investigated physiological process. Healing may soon be applied to every sphere of human life *except* medicine. With everything in existence now medicalized, healing is thus effectively demedicalized. The cultural historian Christopher Lasch had something like this in mind when he lamented the “therapeutic sensibility”<sup>58</sup> that had insinuated itself into domains of cultural discourse once the province of applied social ethics. The non-medical usages of healing thus become something of a marker for what Lasch termed the “culture of narcissism.”<sup>58</sup>

This is not a new critique, by any means; it goes back to the days when CAM was known as the holistic health movement.<sup>59</sup> The substitution of “healing” for other concepts which might more effectively, and justly, describe and mobilize efforts at health-related change in the social, environmental, political, and economic spheres mirrors the identification of individually and voluntarily modifiable “life styles” as the predominant determinants of population health.<sup>60</sup>

Accordingly, such overuse of “healing” challenges the persistent notion that CAM entails a radical rethinking of the assumptions of biomedicine.<sup>61</sup> Proponents like to describe CAM as a heretical movement for medicine,<sup>62</sup> and it could have evolved into such, perhaps to its credit, but it did not. It is now more a matter of old wine in new wineskins. Indeed, the liberal usage of “healing” bespeaks a kind of individualism that puts even stereotypes of biomedicine to shame. Because everything is about me and how I look and feel and function, my own physical and psychological status and quality of life are the most important things in the world. Thus, the most valued and pressing need that I or any of us have is to fuss over these things. *The name given to the idealized endpoint of this fussing, essentially, is “healing.”* It is the ultimate value in life, the most lofty attainment of the individual and society, and it names the objective state to be sought after, more than any other, by every person and every social and political institution.

#### “NOSOLOGY”: DIMENSIONS OF HEALING

These observations are conditioned not just by how healing is defined, but by how for years it has been typologized,

taxonomized, categorized, classified, and generally cut and diced. For CAM, the laxity in defining healing, simultaneously, as an intervention, outcome, process, and so on goes hand in hand with the laxity in its application to describe resolution of every individual, interpersonal, or societal woe. Likewise, for biomedicine, the stringency in defining healing narrowly as just one thing—the repair of wounds—is paralleled by its application primarily to focal lesions and rarely to other ailments, physical, psychological, or interpersonal.

Two issues come to the fore in discussing how healing has been taxonomically described. One of these is a more descriptive issue: it is the matter of the “levels” at which healing is said to operate. Is healing only about the closure of wounds or is it a salutogenic process that may occur elsewhere in or throughout the human body (or body–mind), such as within the different anatomical or physiological systems? The second issue is substantive and addresses physiological and pathophysiological matters: the manner in which healing, if indeed multidimensional, is experienced across these various dimensions or levels or systems. Does the salutogenic process, in such instances, occurring as it is said to do throughout various bodily systems, manifest separately, step-sequentially, or synchronously? Such a characteristic of healing, if validated, would be a defining feature of healing-as-a-multidimensional process and a key element in any hypothetical model of what has been termed “salutophysiology.”<sup>63</sup> This section addresses these two issues: the postulated dimensionality of healing and its hypothetical characterization as a systemic phenomenon.

### The multidimensionality of healing

Within CAM and related fields, as noted, the term “healing” is invoked, in part, to name processes, states, and/or outcomes associated with various levels or systems of human life. That is, healing is a phenomenon said to occur within and among cells, within and among cultures and civilizations, and within and among all kinds of things in between. This includes levels and systems defining human biological, bi-behavioral, and psychosocial functioning and quality of life. Thus, besides the conventional wound healing, we see more novel usages: “cellular healing,”<sup>64</sup> “epithelial healing,”<sup>65</sup> “mucosal healing,”<sup>66</sup> “psycho-cellular healing,”<sup>67</sup> “mental healing,”<sup>68</sup> “emotional healing,”<sup>69</sup> “interpersonal healing,”<sup>70</sup> “corporate healing,”<sup>71</sup> “societal healing,”<sup>72</sup> “economic healing,”<sup>73</sup> “political healing,”<sup>74</sup> “cultural healing,”<sup>75</sup> and “environmental healing.”<sup>76</sup> Actually, limitation here of the spectrum of healing to everything between cells and cultures is too narrow. To wit, we also find references to “sub-atomic healing”<sup>77</sup> and “molecular healing,”<sup>78</sup> at one end of the spectrum, and “planetary healing,”<sup>79</sup> “earth healing,”<sup>80</sup> “gaia healing,”<sup>81</sup> “galactic healing,”<sup>82</sup> “soul healing,”<sup>83</sup> “cosmic healing,”<sup>84</sup> and “divine healing”<sup>85</sup> at the other end. As for “quantum healing,”<sup>86</sup> it is not clear at which end of the spectrum it should be placed. And, lest we forget, there is Marvin Gaye’s famous “sexual healing.”<sup>87</sup>

To be fair, some of these usages, particular those sticking closely to the human body, are not inherently unreasonable uses of “healing.” If indeed a status can develop in these domains that could be defined as pathological (i.e., having

undergone a pathogenic shift away from a baseline of normal structure or function), then subsequent movement in a salutogenic direction becomes a legitimate possibility. This includes sexual healing. Something that could rightly be called healing may conceivably be experienced, even if it cannot accurately be defined strictly in terms of repair of a tissue wound or lesion, as in the biomedical definition of wound healing.

Imagine a case in which a patient suffers from a constellation of signs and symptoms pointing to something pathophysiological occurring in multiple functional and organ systems due to a single diagnosis with known systemic effects. A course of therapy is begun which seeks resolution or improvement across each system, leading, one hopes, to a cure. If we choose to refer to this salutogenic movement as “healing,” then healing rightly could be considered a multi-dimensional phenomenon. That is, it occurs, ideally, at multiple levels or within multiple subsystems of the human biological organism, and signals remission of symptoms and signs, improved status according to particular biomarkers, and so on. Such a usage of the word healing, applied to biomedical and clinical phenomena underlying human disease, can and should be distinguished from, and valued over, usages misapplied to non-medical phenomena.

It is easy to make light of the most extreme overextensions of the concept of healing (e.g., cosmic healing, gaia healing, and the like). We can question the medicalization of these phenomena that manifest past the boundaries of human bodies and that are unrelated to medicine, but, at the same time, we can appreciate the extension of the healing metaphor beyond reference to a discrete, localized lesion or wound. Emotional healing (such as recovery from diagnosed mood disorders), even molecular healing (in light of rapidly accelerating advances in genomics and molecular biology), are less easy to make light of and deserve consideration within certain bounds. Perhaps a happy medium would be to adopt “healing” for reference to salutogenic processes at all levels of expression of pathophysiological and psychiatric disease, but enforce a moratorium on its use beyond those boundaries. Thus, let us bid goodbye, for example, to sub-atomic healing and cosmic healing.

### The interaction of dimensions of healing

It is one thing to state that healing, within bounds, can be considered multidimensional. From its many usages, listed above, such a statement appears to be at least somewhat accepted, as far as healing-as-a-process, or salutogenesis, is concerned. It is quite another thing to describe how it is that such healing occurs across multiple dimensions. How are we to understand the potential multidimensionality of healing?

To restate this question, how may we conceive of the operation of a broader, multidimensional usage of healing? What are these multiple dimensions, what is it that is happening within them, and is there any relation among what is happening within respective dimensions? A conceptual expansion, such as what is proposed for healing, is only as good as the theoretical rationale underlying it. We must attempt to describe how the presumptive salutogenic

processes occurring at these multiple levels or in these multiple systems ostensibly interact.

Three hypothetical possibilities come to mind. Do these various dimensions or loci of healing occur *separately*—that is, distinctively, with minimal correlation? Do they instead occur *step-sequentially*—that is, with some contingency among them, as in a chain or cascade? Or do they occur *synchronously*—that is, simultaneously and in unison, manifesting as systemic or system-wide effects?

First, healing may occur independently across separate dimensions of the human system. A clinical case may require discrete treatment of multiple pathologies manifesting throughout the body due to a single underlying disease process. This may require different therapies or medications per respective bodily systems. Consider, for example, complications due to type 2 diabetes in a geriatric patient. The patient may, simultaneously, be suffering from metabolic, cardiovascular, orthopedic, respiratory, dermatologic, renal, ophthalmological, psychiatric, and/or other signs and symptoms that are sequelae of the long-term degenerative effects of the underlying diagnosis.<sup>88</sup> These problems, in turn, may require distinct treatment or intervention, at some point, from different specialists or subspecialists, albeit coordinated or managed by a diabetes specialist.<sup>89</sup> If “healing” is to be attained, whether a full cure (unlikely) or recovery from acute emergencies, then this may require separate interventions by separate practitioners seeking to elicit separate salutogenic processes in separate parts of the body.

Second, healing may occur step-sequentially across multiple dimensions of the human body–mind. That is, “healing” of one set of signs or symptoms in one bodily system may necessarily precede healing in another system, as in a cascade effect. Consider an example taken from the realm of CAM: classical homeopathy.<sup>90</sup> No matter, for the sake of the present discussion, that this controversial modality has not been validated to the consensus approval of Western medicine; that is grist for another conversation. For now, the key point is the principle that a particular constitutional remedy may engender the “unwinding” of symptoms, backward in time, so to speak, temporarily expressed and then resolved, until the patient is symptom-free—a feature of a concept known to homeopaths as Hering’s laws.<sup>91(pp18–19)</sup> Hypothetically, this would be an example of a sequentially manifested salutogenic response across multiple bodily systems, although whether these respective systems and their pathologies are/were authentically correlated in some substantive way is indeterminate. One might not even know that these multiple systems needed “healing” until the transient symptomatic re-expression during the unwinding process. Another hypothetical example might be modern-day sweat lodges, whereby participants spend many hours over many days sweating out “toxins,” presumably, that re-emerge sequentially, moving backward in time even to childhood, until the client is eventually healed.<sup>92</sup>

Third, healing may occur synchronously across multiple dimensions or organ systems. For example, a patient may be suffering from an infection which expresses in signs and symptoms impacting on multiple parts of the body. Before the situation becomes chronic, a course of treatment, such as

antibiotics, may work to resolve, to “heal,” the disease throughout the entire body. Consider Lyme disease, which can manifest in dermatological, minor rheumatological, and flu-like signs and symptoms at first, and, untreated, evolve into a more complex presentation with neurological, cardiovascular, serious rheumatological, and other problems.<sup>93</sup> Antibiotics can knock out the disease early on, before complications emerge, although in chronic cases, which are more difficult to treat and remain diagnostically controversial, long-term antibiotic treatment has been called into question and other medications may be required.<sup>94</sup> In contrast to the first example above, diabetes, Lyme disease in its acute presentation is typically managed by a single specialist who oversees a course of therapy intended to resolve the disease, and thus, ideally, promote “healing” throughout the entire body.

If healing can be conceptualized as multidimensional, then the way in which these multiple dimensions interact is a subject of considerable importance and deserves a place near the top of any research agenda. It may also be that the way in which the salutogenic process occurs is wholly or partly dependent on the nuances of a particular diagnosis or on some other factors related to a particular case, including factors intrinsic to human hosts or environments or to medical care. There may be constancies to all this and there may be variable processes and phenomena. Someday, when we know as much about salutogenesis as about pathogenesis, these issues may not seem so opaque or confusing.

## “ETIOLOGY”: DETERMINANTS OF HEALING

To review, we have considered two broad conceptual approaches to the term “healing.” The first approach consists of a couple of usages confined almost exclusively to biomedicine: healing as the repair of tissue wounds, and healing as the recovery from a pathogenic (disease) state. The second approach consists of competing usages found almost exclusively in CAM: healing-as-intervention, healing-as-process, and healing-as-outcome. Moreover, in the CAM context especially, healing is considered to be multidimensional and capable of application to every level or dimension of human experience. This summarizes, more or less, what healing *is*, at least according to prevailing usages—in other words, the “what” of healing.

We now further consider the “how” of healing, mostly in its healing-as-process or salutogenic context—whether healing of focal lesions (as in biomedicine) or as applied to more complex biopsychosocial statuses or mechanisms (as in CAM). The question here is what are those other factors or variables or concepts that are known or believed to cause or antecede or influence what is being referred to, in various contexts, as healing. How much is known? How much is just speculation? What do we really know about the healing process?

### The multifactoriality of healing

Within the narrower biomedical context, as already noted, healing means wound healing, and not much else. In some

instances, again as noted, healing may also refer in a larger sense to recovery from illness. But to the extent to which there is a field of scientific research focused on healing, this field consists almost entirely of bench research on the repair of physical wounds. As currently understood, the process of wound healing is a complex phenomenon that entails a sequence of stages and mechanisms involving multiple categories of responses, various types of cells, and different types of events.<sup>95</sup> Phases of the healing response include coagulation and hemostasis, inflammation, proliferation of fibroblasts, and remodeling of the wound.<sup>96</sup> The healing response is classified into several categories, by the depth and severity of the wound and the complexity of the clinical presentation. These include healing by primary intention (e.g., suturing of a clean wound without tissue loss or infection) and healing by secondary intention (e.g., formation of granulation tissue over an open wound that has undergone tissue loss).<sup>95,96</sup>

A substantial number of factors have been identified that impact on wound healing, including antecedents which hasten a healing response. The repair of acute wounds (e.g., dermal injuries) entails multiple mechanisms of cellular and molecular activity. These involve the immune system (including inflammation and phagocytosis), re-epithelialization (e.g., through growth factors), fibroblasts (which proliferate and contribute to granulation of the wound), angiogenesis (e.g., through oxygen and nutrient delivery), and innervation (leading to regeneration).<sup>97</sup> This is actually the CliffsNotes version of the wound healing process; each of these categories, especially related to the presence of growth factors and cytokines involved in regulating tissue regeneration,<sup>98</sup> defines substantial fields of basic research.<sup>99</sup> There are also pathologic aspects of repair: those intrinsic or extrinsic factors that hinder the healing process, including infection.<sup>99</sup> The healing of chronic wounds (e.g., diabetic foot ulcers) creates additional complexities and folds in additional variables.<sup>99</sup> From this perspective healing may only refer to the healing of wounds—and thus be unidimensional—but it is clearly multifactorial, when taking into account the litany of factors that may influence this process.

According to the more expansive CAM context, healing is multidimensional, as already described, and, as in the biomedical context, also multifactorial. That is, it is caused by, or has associated with it, multiple antecedent factors. These vary by the dimension or level of healing under consideration. A recent NIH-funded review of existing diagnostic questionnaires and focused interviews with CAM providers and patients identified several categories of factors believed to engender “non-specific effects” on healing, defined as a successful treatment outcome: patient–provider relationships, the healthcare environment, optimism, spirituality, pro-CAM attitudes, and treatment expectations.<sup>100</sup> A non-systematic summary of many of the CAM resources referenced earlier, as well as several early and influential books on holistic medicine, expands this list to include many additional determinants of healing, including techniques to diagnose what/where requires healing. These include psycho-emotional factors (e.g., color and light; creativity; humor; love; music; pets; play; solacing objects; touch),<sup>101</sup> holistic/wholistic

therapies (e.g., homeotherapeutics, macrobiotic diet, radionics, radiesthesia-psionic medicine, biorhythms, biofeedback, and psychosynthesis),<sup>102</sup> and occult phenomena (e.g., psychic healing, astrology, etheric surgery, and autogenics).<sup>103</sup> Thus, while healing in this context covers many more domains of the human system than simply open wounds, it is no more or less multifactorial, except that the scope of those factors deemed influential on the healing process covers considerably more ground, some of them highly unorthodox.

As is apparent, not all of these putative healing factors in CAM context have their origins in anatomical structures, (patho-)physiological processes, or natural substances. Some involve phenomena that are clearly outside the mainstream of human pathophysiology or psychology, or even biological or physical science. One should also note the absence of any substantial overlap between this set of factors and those associated with wound healing. As much as anything, this one fact underscores how little the two approaches to defining healing have in common. It is as if they occupy two different conceptual worlds.

But regardless, as the existence of both of these sets of determinant factors makes plain, the multifactoriality of healing is widely accepted, whether we are speaking of wound healing or of more multidimensional takes on healing. So multifactoriality is not objectionable in principal. In simplest terms, multifactoriality means that there are a multiplicity of antecedent factors associated with successful therapeutic outcomes, with recovery from disease, and with the salutogenic process generally. This much is conceded within both biomedicine and CAM. Rather, the substantive content of the multifactoriality—the identity of those variables that are fair game in a discussion of healing—meets with little consensus. That is a matter highly dependent upon the context of the discussion.

For example, a regulator of tissue repair, such as epidermal growth factor (EGF),<sup>104</sup> is likely to find wider acceptance within a future basic biomedical science of healing than, say, past-life karma, the latter of which might make perfect sense to a New-Age healer specializing in clients with intractable life-long relationship problems.<sup>105</sup> This is not stated here to be flippant, but to underscore that any productive study of the “how” of healing writ large—such as in a theory of salutogenesis applicable in whole-person context—is going to be contingent upon some sort of common agreement on the “what” of healing. At present, this seems far away.

### The salutogenic focus of therapies

Notwithstanding these observations, existing therapies within the mainstream of Western medicine more often than not have a unitary focus. That is, they seek to effect healing or recovery or restoration in relation to pathology of a primary antecedent or etiologic factor or to pathogenesis occurring within a single “level” of the human system, as described earlier—or to a select set of signs and symptoms or organ systems.<sup>106</sup> Few discrete clinical regimens, such as a single drug or procedure, are intended or expected to act at once on the human body–mind in its entirety: on, say, the immune system, the nervous system, the blood, cognitions, emotions, and multiple organ systems, such as the brain and liver and

heart, all at once. This is as true for biomedicine as for CAM, except for certain alternative therapies such as classical homeopathy, which is believed by practitioners to act systematically but which remains highly controversial.<sup>91</sup>

Biomedicine seems to be more cautious and less prone to overpromise than CAM, on the whole, when it comes to expectations about systemic effects. Respective medications or therapies do specific things, and one clinical case may require multiple such courses of treatment in order to fully resolve. This is because the goal is not necessarily an amorphous “healing”—whatever that may look like—but rather the remission of particular complaints or the restoration of levels of particular biomarkers to within normal limits.

For healing, in its systemic context, the combined multidimensionality and multifactoriality implicit in such broader definitions of the healing process presents a significant challenge for clinicians. Either (a) a medical practitioner needs to manage a multiplicity of therapies and medications for one case, or (b) he or she must identify respective therapies that reliably act on multiple factors in most people. That is, for a given complex diagnosis—say, chronic fatigue syndrome<sup>107</sup>—one must identify treatments targeting “healing” at multiple respective levels or within multiple systems (e.g., neurological, muscular, rheumatological, immunological, gastrointestinal, psychiatric, and so on) or one must identify a single treatment that effects “healing” across all such systems. This situation is fraught with special complexities: in the former situation, the problem of polypharmacy, even if a case is managed by a single provider and if such validated therapies even exist; in the latter situation, the limitations of existing pharmacotherapeutics—a single systemic treatment may not exist for a given case.

This reminds us that it may be easy to postulate and advocate for a broader perspective on a discrete biomedical issue such as “healing” as a result of a conceptual history, such as in this article, but the demands that may emerge in the clinical management of particularly complex cases under such a perspective may render real-world application daunting to envision at present. This suggests a third possibility—(c) the job of the clinician is about something less florid and grandiose than effecting “healing” in its wider context. It may be enough simply to manage a case, in all its complexities, and hope to reduce suffering, halt or slow down an active disease process, and restore function.

## CONCLUSIONS

To summarize, healing is a word and concept that has been and is still subject to a multiplicity of competing and often conflicting usages. In various contexts and by various authors, it may refer to an intervention, the outcome of an intervention, or the process by which the outcome occurs. Each of these is considered by some to define “healing.” One may observe different patterns of usage between biomedical scientists and clinicians, on the one hand, and CAM practitioners and New-Age writers, on the other. For the former, healing is mostly about the repair of wounds; for the latter, it may be about almost anything. This essay has sought to provide an interpretive summary of the definitions,

dimensions, and putative determinants implicit in these multiple usages of the word.

At the start of this article, a question was posed: “What is healing?” As this conceptual history of the term has shown, especially in its contemporary usages, this is not as off-the-wall a question as it first may have appeared. A consensus answer is difficult to find. Perhaps this ought not to be surprising. There is no consensus answer to the question, “What is a disease?”<sup>108</sup> nor is there uniform agreement as to what differentiates disease and “non-disease.”<sup>109</sup> If medicine has so much trouble defining disease, is it any wonder that “healing” remains elusive?

Questions such as these are not simply arcane matters of word-parsing of concern only to historians and other academics. How healing is defined and described matters for the practice of medicine. If this act of defining is not done carefully, then one must question the conclusions of respective studies, reviews, and other pieces of writing on the subject of healing, whether from the mainstream of biomedicine or from CAM. Consider, for example, a bestselling text by a popular New-Age doctor.<sup>110</sup> Throughout the book, healing is described in various competing ways. For the author, healing:

... is definitely more along the line of healing through Spirit or spirituality ... <sup>110(p150)</sup>

... is most accurately defined as a “spiritual communication/information exchange.”<sup>110(p150)</sup>

... is *not a technique at all*. It *transcends* technique.<sup>110(p227)</sup>

... is not the “how” or “why”—nor is it a recipe. It is a state of being.<sup>110(p333)</sup>

... is about an evolutionary process brought into existence through *co-creation* at the highest vibrational interaction with the Universe.<sup>110(p331)</sup>

... is mediated through higher or universal intelligence ... <sup>110(p199)</sup>

... is a capacity shared by all.<sup>110(p212)</sup>

... is a decision reached between the patient and the universe.<sup>110(p172)</sup>

None of this is being documented here to disparage these ideas nor to question the motives of the author. This book is a passionate account of whole-person healing and makes fascinating reading. But, in this one influential work, healing is described simultaneously as a method (“healing through Spirit”), an exchange of information, not a technique, a state of being, a process, something mediated, a capacity, and an outcome (“decision”), and this does not seem to have set off any alarms. The book was published by an established CAM press in 2001, and endorsed by popular medical and healthcare celebrities such as Drs. Deepak Chopra, Mehmet Oz, Christiane Northrup, and Wayne Dyer. The author assures us that his content “is firmly supported by the latest theories on nuclear and quantum physics,”<sup>110(p137)</sup> but no references are given. Perhaps the most reasoned statement about healing is found toward the end of the book: “Some things are difficult to explain ...”<sup>110(p333)</sup>

The conclusion here is plain: lots of folks use the word healing, for whatever reasons, but few of them are clear as to what the word means or should mean, and fewer apparently see this as an issue that much matters. There is nothing new

here: not much forward progress has occurred since the first uses of the word hundreds of years ago. As noted at the start of this article, this enduring conceptual laxity renders “healing” in its broader CAM/salutogenesis/healing-as-process context less than ideal as a research construct. Perhaps this is why widespread programmatic research on healing in this wider context has never emerged.<sup>111</sup> Without greater conceptual clarity, such research is not possible.

This point was brought home to the present author at a CAM conference over 20 years ago. Both before and after his presentation, which reviewed epidemiologic research findings on the primary-preventive population-health impact of measures of the frequency of formal religious behavior (a relatively new and quite contentious topic at the time), the discussant continually referred to this as research on “healing.” This author protested, publicly and later on privately, but the discussant refused to acknowledge that these studies of putative protective effects on population-level morbidity and mortality rates associated with the independent variables were not evidence of “healing,” moreover of “spiritual healing.” The present author had never conducted any empirical research on such a topic, ever, nor had anyone among the small group of physicians, epidemiologists, and medical social scientists who had investigated this category of psychosocial exposure variables in population-based health research up to that time. Moreover, the lecture had simply summarized observational survey data from prospective cohort studies using large-scale samples of healthy populations, typical of epidemiologic research. Nothing in the way of clinical samples, experimental designs, nor any type of therapy or intervention was involved, much less the ministrations of would-be faith healers. This was pointed out to the discussant, in detail, and, again, the protest fell on deaf ears. This was research on healing, the results proved the healing power of spirituality, and how could it be any plainer?

“Healing” seems to have become a politically-correct label or proxy for all things biomedical or health-related or ostensibly therapeutic or even just good. It is a special buzzword with magical properties that, once invoked, reify all sorts of presumed and unproven fantasies about the determinants of health and the putative causation and cure of diseases. For medical research, such a usage of “healing,” to reiterate, is worthless.

More conceptually careful engagement of healing by biomedical scientists and clinicians would be welcomed. Better resolution of the issues broached in this article—or simply more uniform usage—might benefit the work of scientists and physicians and, thus, ultimately, patients and populations. This may seem like a bloodless statement after the i-dotting and t-crossing of this article, but we can probably all agree that whatever healing is and is not, or however it should or should not be referenced, it is by all accounts a good thing. At the least, it is better than its opposite.

A true science of salutogenesis, of the healing process in its broadest and most systemic context, would be a welcome development. Because of existing confusion over conceptual features of “healing,” these would need to attain a consensus before an actual field of study could evolve. But

physiological, psychophysiological, and pathophysiological (and “salutophysiological”) research on healing may have something important to contribute to the ongoing knowledge base of the basic biomedical sciences.<sup>112</sup> There may be implications for epidemiology and public health, as well. Preliminary work has been done which suggests a place for healing/salutogenesis in theoretical models of the determinants of population health,<sup>4</sup> for health promotion and disease prevention,<sup>113</sup> and for public health development efforts.<sup>114</sup> Additionally, there may be significant implications for the clinical practice of medicine and for the healthcare system, such as through design of optimal healing environments.<sup>115</sup> A more expansive and coherent view of healing thus may contribute to health and medicine in multiple ways: through advancing our knowledge of human physiology and through fostering clinical, physical, and social environments that foster whole-person healing and healthier populations.

## REFERENCES

1. Levin J. Scientists and healers: toward collaborative research partnerships. *Explore (NY)*. 2008;4(5):302–310.
2. Quinn J. On healing, wholeness, and the Haelan effect. *Nurs Health Care*. 1989;10(10):552–556.
3. Simpson JA, Weiner ESC, editors. *The Oxford English Dictionary, Volume VII: Hat-Intervacuum*, 2nd ed. Oxford, UK: Clarendon Press; 1989.
4. Levin J. Integrating positive psychology into epidemiologic theory: reflections on love, salutogenesis, and determinants of population health. In: Post SG, editor. *Altruism and Health: Perspectives from Empirical Research*. New York: Oxford University Press; 2007;189–218.
5. *Stedman's Medical Dictionary*. 28th ed. Baltimore: Lippincott Williams & Wilkins; 2006.
6. *Dorland's Illustrated Medical Dictionary*. 32nd ed. Philadelphia: Elsevier Saunders; 2012.
7. *Taber's Cyclopedic Medical Dictionary*. 22nd ed. Philadelphia: F.A. Davis Company; 2009.
8. Marcovitch H, editor. *Black's Medical Dictionary*. 41st ed. London: A&C Black; 2005.
9. *Mosby's Medical Dictionary*. 10th ed. St. Louis: Elsevier; 2017.
10. Segen JC. *Concise Dictionary of Modern Medicine*. New York: McGraw-Hill; 2006.
11. Antonovsky A. *Health, Stress, and Coping: New Perspectives on Mental and Physical Well-Being*. San Francisco: Jossey-Bass; 1979.
12. Antonovsky A. *Unraveling the Mystery of Health: How People Manage Stress and Stay Well*. San Francisco: Jossey-Bass; 1989.
13. Kumar V, Abbas AK, Aster JC, editors. *Robbins and Cotran Pathologic Basis of Disease*. 9th ed. Philadelphia: Elsevier Saunders; 2015.
14. Hammer GD, McPhee SJ, editors. *Pathophysiology of Disease: An Introduction to Clinical Medicine*. 7th ed. New York: McGraw-Hill Education; 2014.
15. McCance KL, Huether SE, editors. *Pathophysiology: The Biologic Basis for Disease in Adults and Children*. 7th Edition. St. Louis: Elsevier Mosby; 2014.
16. Kaspar DL, Fauci AS, Longo DL, Hauser SL, Jameson JL, Loscalzo J, et al., editors. *Harrison's Principles of Internal Medicine*. 19th ed. New York: McGraw-Hill Education; 2015.
17. Goldman L, Schafer AI, editors. *Goldman-Cecil Medicine*. 25th ed. Philadelphia: Elsevier Saunders; 2016.

18. Warell DA, Cox TM, Firth JD, editors. *Oxford Textbook of Medicine*. 5th ed. Oxford, U.K.: Oxford University Press; 2010.
19. Rakel RE, Rakel DP, editors. *Textbook of Family Medicine*. 9th ed. Philadelphia: Elsevier Saunders; 2016.
20. Taylor RB, editor. *Family Medicine: Principles and Practice*. 6th ed. New York: Springer; 2003.
21. Freeman TR. *McWhinney's Textbook of Family Medicine*. 4th ed. New York: Oxford University Press; 2016.
22. Wallace RB, editor. *Maxcy-Rosenau-Last Public Health & Preventive Medicine*. 15th ed. New York: McGraw-Hill Medical; 2008.
23. Detels R, Gulliford M, Karim QA, Tan CC, editors. *Oxford Textbook of Global Public Health*. 6th ed. Oxford, UK: Oxford University Press; 2015.
24. Katz DL, Elmore JG, Wild DMG, Lucan SC, editors. *Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health*. 4th ed. Philadelphia: Elsevier Saunders; 2014.
25. Gordis L. *Epidemiology*. 5th ed. Philadelphia: Elsevier Saunders; 2014.
26. Friedman GD. *Primer of Epidemiology*. 5th ed. New York: McGraw-Hill; 2004.
27. Rothman KJ, Greenland S, Lash TL. *Modern Epidemiology*. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; 2008.
28. Schneider D, Lilienfeld DE. *Lilienfeld's Foundations of Epidemiology*. 4th ed. New York: Oxford University Press; 2015.
29. Nelson KE, Williams CM. *Infectious Disease Epidemiology*. 3rd ed. Burlington, MA: Jones & Bartlett Learning; 2014.
30. Magnus M. *Essentials of Infectious Disease Epidemiology*. Sudbury, MA: Jones and Bartlett Publishers; 2008.
31. Giesecke J. *Modern Infectious Disease Epidemiology*. 2nd ed. New York: Oxford University Press; 2002.
32. Heymann DL, editor. *Control of Communicable Diseases Manual*. 20th ed. Washington, DC: APHA Press; 2015.
33. Kasper DL, Fauci AS, editors. *Harrison's Infectious Disease*. 2nd ed. New York: McGraw-Hill Education; 2013.
34. Bennett JE, Dolin R, Blaser MJ, editors. *Mandell, Douglass, and Bennett's Principles and Practice of Infectious Diseases*. 8th ed. Philadelphia: Elsevier Saunders; 2015.
35. Dossey L. Samuelli conference on definitions and standards in healing research: working definitions and terms. *Altern Ther Health Med*. 2003;9(3, suppl):A10-A12.
36. Zahourek RP. Healing: through the lens of intentionality. *Holist Nurs Pract*. 2012;26(1):6-21.
37. Boyd KM. Disease, illness, sickness, health, healing and wholeness: exploring some elusive concepts. *Med Humanit*. 2000;26(1):9-17.
38. Micozzi MS, editor. *Fundamentals of Complementary and Alternative Medicine*. 5th ed. St. Louis: Elsevier Saunders; 2015.
39. Freeman L, editor. *Mosby's Complementary & Alternative Medicine: A Research-Based Approach*. 3rd ed. St. Louis: Mosby Elsevier; 2009.
40. Pizzorno JE, Murray MT, editors. *Textbook of Natural Medicine*. 4th ed. St. Louis: Elsevier Churchill Livingstone; 2013.
41. Jonas WB, Levin JS, editors. *Essentials of Complementary and Alternative Medicine*. Philadelphia: Lippincott Williams & Wilkins; 1999.
42. Firth K, Smith K, Sakallaris BR, Bellanti DM, Crawford C, Avant KC. Healing, a concept analysis: appendix A. *Glob Adv Health Med*. 2015;4(6):44-50.
43. Kunz D. Compiler *Spiritual Healing: Doctors Examine Therapeutic Touch and Other Holistic Treatments*. Wheaton, IL: Quest Books; 1995.
44. Young A. *Spiritual Healing: Miracle of Mirage?* Marina del Rey, CA: DeVorss & Company; 1981.
45. Goldsmith JS. *The Art of Spiritual Healing*. New York: Harper-SanFrancisco; 1959.
46. Sanford A. *The Healing Gifts of the Spirit*. Philadelphia: J.B. Lippincott; 1966.
47. Sherwood K. *The Art of Spiritual Healing*. St. Paul, MN: Llewellyn Publications; 1994.
48. Watts F, editor. *Spiritual Healing: Scientific and Religious Perspectives*. Cambridge, UK: Cambridge University Press; 2011.
49. Angelo J. *Spiritual Healing: Energy Medicine for Today*. Shaftesbury, UK: Element; 1991.
50. Benor DJ. *Spiritual Healing: Scientific Validation of a Healing Revolution*. Southfield, MI: Vision Publications; 2001.
51. Frank JD, Frank JB. *Persuasion and Healing: A Comparative Study of Psychotherapy*. third edition. Baltimore: Johns Hopkins University Press; 1991.
52. Levin J. How faith heals: a theoretical model. *Explore (NY)*. 2009;5(2):77-96.
53. Koenig HG. *The Healing Power of Faith: Science Explores Medicine's Last Great Frontier*. New York: Simon & Schuster; 1999.
54. Crawford R. Healthism and the medicalization of everyday life. *Int J Health Serv*. 1980;10(3):365-388.
55. Baronov D. Biomedicine: an ontological dissection. *Theor Med Bioeth*. 2008;29(4):235-254.
56. McKee J. Holistic health and the critique of Western medicine. *Soc Sci Med*. 1988;26(8):775-784.
57. Kopelman L, Moskop J. The holistic health movement: a survey and critique. *J Med Philos*. 1981;6(2):209-235.
58. Lasch C. *The Culture of Narcissism: American Life in an Age of Diminishing Expectations*. New York: W.W. Norton; 1979; 7-13.
59. Vanderpool HY. The holistic hodgepodge: a critical analysis of holistic medicine and health in America today. *J Fam Pract*. 1984;19(6):773-781.
60. Coreil J, Levin JS, Jaco EG. Life style—an emergent concept in the sociomedical sciences. *Cult Med Psychiatry*. 1985;9(4): 423-437.
61. Wolpe PR. The holistic heresy: strategies of ideological challenge in the medical profession. *Soc Sci Med*. 1980;31(8): 913-923.
62. Stambolovic V. Medical heresy—the view of a heretic. *Soc Sci Med*. 1996;43(5):601-604.
63. Salutophysiology for midwives. Salzburg University of Applied Sciences, Health Studies. 2016. (<http://www.fh-salzburg.ac.at/en/disciplines/health-studies/postgraduate-applied-physiology-for-midwives/degree-programme/>). Accessed 16.11.02.
64. Roon AJ, Malone JM, Moore WS, Bean B, Campagna G. Bacteremic infectability: a function of vascular graft material and design. *J Surg Res*. 1977;22(5):489-498.
65. Brown JB, McDowell F. Epithelial healing and the transplantation of skin. *Ann Surg*. 1942;115(6):1166-1181.
66. Iacucci M, Ghosh S. Mucosal healing—how deep is enough? *Dig Dis*. 2016;34(1-2):160-164.
67. Hirsch C. Everything you always wanted to know about hypnosis ... Santa Monica Hypnotherapy Center. ([http://www.hypnosisworks.com/FAQ.htm#What is psycho-cellular healing](http://www.hypnosisworks.com/FAQ.htm#What_is_psycho-cellular_healing)). Accessed 16.11.02.
68. Mental healing. *Br Med J*. 1910;1(2581):1483-1497.
69. Mazhindu D. Emotional healing. *Nurs Times*. 1998;94(6):26-28.
70. Miller FG, Colloca L, Kaptchuk TJ. The placebo effect: illness and interpersonal healing. *Perspect Biol Med*. 2009;52(4): 518-539.

71. Riley M. *Corporate Healing: Solutions to the Impact of the Addictive Personality in the Workplace*. Deerfield Beach, FL: Health Communications; 1990.
72. Eggleston K. Inviolable uniqueness: human enhancement technologies, ableism, and the healing potential of human dignity through FIXED: the science/fiction of human enhancement. *Commun Soc*. 2015;3(3):377–386.
73. Bernanke BS. The near- and longer-term prospects for the U.S. economy. Remarks at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, WY, August 26, 2011. (<http://www.federalreserve.gov/newsevents/speech/bernanke20110826a.pdf>). Accessed 16.11.02.
74. Amstutz MR. *The Healing of Nations: The Promise and Limits of Political Forgiveness*. Lanham, MD: Rowman & Littlefield; 2005.
75. Abadian S. Cultural healing: when cultural renewal is reparative and when it is toxic. *Pimatisiwin*. 2006;4(2):5–27.
76. Hufford DJ, Chilton M. Politics, spirituality, and environmental healing. In: Chesworth J, editor. *The Ecology of Health: Identifying Issues and Alternatives*. Thousand Oaks, CA: Sage Publications; 1996;59–71.
77. Sairam TV. *The Penguin Dictionary of Alternative Medicine*. New Delhi: Penguin Books; 2007;274.
78. Martinez de Albornoz P, Forriol F. The meniscal healing process. *Muscles Ligaments Tendons J*. 2012;2(1):10–18.
79. Todd J. Planetary healing. *Ann Earth Steward*. 1983;1(1):7–9.
80. Ruether RR. *Gaia and God: An Ecofeminist Theology of Earth Healing*. New York: HarperSanFrancisco; 1992.
81. Lovelock J. *Healing Gaia: Practical Medicine for the Planet*. New York: Harmony Books; 1991.
82. Franklin E, Carey D. From galaxies to cells: bridging science, sound vibration and consciousness through the music of the spheres. *Subtle Energ Energy Med*. 2005;16(3):283–317.
83. Goldberg B. *Soul Healing*. St. Paul, MN: Llewellyn Publications; 1996.
84. Young A. *Cosmic Healing: A Comparative Study of Channeled Teachings on Healing*. Marina del Rey, CA: DeVorss & Company; 1988.
85. Nichols CF. Divine healing. *Science*. 1892;19(468):43–44.
86. Chopra D. *Quantum Healing: Exploring the Frontiers of Mind/Body Medicine*. New York: Bantam; 1990.
87. Gaye M. Sexual healing [recording]. Columbia Records 38-03302; 1982.
88. Lim EL, Taylor R. Clinical presentations of diabetes. In: Holt RIG, Cockram C, Flyvbjerg A, Goldstein BJ, editors. *Textbook of Diabetes*. 4th ed. Oxford, UK: Wiley-Blackwell; 2010;313–322.
89. Sinclair AJ, Croxson SCM. Diabetes mellitus. In: Fillit HM, Rockwood K, Woodhouse K, editors. *Brocklehurst's Textbook of Geriatric Medicine and Gerontology*. 7th ed. Philadelphia: Saunders Elsevier; 2010;760–774.
90. DeSchepper L. *Hahnemann Revisited: A Textbook of Classical Homeopathy for the Professional*. Santa Fe, NM: Full of Life Publishing; 1999.
91. Jonas WB, Jacobs J. *Healing with Homeopathy: The Complete Guide*. New York: Warner Books; 1996.
92. Garrett MT, Torres-Rivera E, Brubaker M, Portman TAA, Brotherton D, West-Olatunji C, et al. Crying for a vision: the Native American sweat lodge ceremony as therapeutic intervention. *J Couns Dev*. 2011;89(3):318–325.
93. Steere AC. Lyme disease (Lyme borreliosis) due to *Borrelia burgdorferi*. In: Bennett JE, Dolin R, Blaser MJ, editors. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*. 8th ed. Philadelphia: Elsevier Saunders; 2015;2725–2735.
94. Lantos PM. Chronic Lyme disease. *Infect Dis Clin North Am*. 2015;29(2):325–340.
95. Luttrell T. Healing response in acute and chronic wounds. In: Hamm RL, editor. *Text and Atlas of Wound Diagnosis and Treatment*. New York: McGraw-Hill Education; 2015;15–66.
96. Velnar T, Bailey T, Smrkolj V. The wound healing process: an overview of the cellular and molecular mechanisms. *J Int Med Res*. 2009;37(5):1528–1542.
97. Martin P, Nunan R. Cellular and molecular mechanisms of repair in acute and chronic wound healing. *Br J Dermatol*. 2015;173(2):370–378.
98. Werner S, Grose R. Regulation of wound healing by growth factors and cytokines. *Physiol Rev*. 2003;83(3):835–870.
99. Kumar V, Abbas AK, Fausto N, Mitchell RN. Tissue repair: regeneration, healing, and fibrosis. In: *Robbins Basic Pathology*. 8th ed. Philadelphia: Saunders Elsevier; 2007;59–79 [chapter 3].
100. Greco C, Yu L, Dodds N, Johnston K, Glick R, Morone N, et al. Measuring the healing context in CAM: progress on developing patient-reported measures of nonspecific contributors to treatment outcome. *J Altern Complement Med*. 2014;20(5):A13–A14.
101. Padus E. *The Complete Guide to Your Emotions and Your Health: New Dimensions in Mind/Body Healing*. Emmaus, PA: Rodale Press; 1986.
102. Kaslof LJ, editor. *Wholistic Dimensions in Healing: A Resource Guide*. Garden City, NY: Doubleday & Co.; 1978.
103. Shealy CN, with Freese AS. *Occult Medicine Can Save Your Life: A Modern Doctor Looks at Unconventional Healing*. Columbus, OH: Brindabella Books; 1975.
104. Barrientos S, Stojadinovich O, Golinko MS, Brem H, Tomic-Canic M. Growth factors and cytokines in wound healing. *Wound Repair Regen*. 2008;16(5):585–601.
105. Wojton D. *Karmic Healing: Clearing Past Life Blocks to Present Day Love, Health, and Happiness*. Berkeley, CA: Crossing Press; 2006.
106. Nadler PL, Gonzales R. Common symptoms. In: Papadakis MA, McPhee SJ, Rabow MW, editors. *Current Medical Diagnosis & Treatment 2016*. New York: McGraw-Hill Education; 2016; 19–43.
107. Steele L, Dobbins JG, Fukuda K, et al. The epidemiology of chronic fatigue in San Francisco. *Am J Med*. 1998;105(3A):83S–90S.
108. Scully JL. What is a disease?: disease, disability and their definitions *EMBO Rep*. 2004;5(7):650–653.
109. Smith R. In search of “non-disease”. *Br Med J*. 2002;324(7342):883–885.
110. Pearl E. *The Reconnection: Heal Others, Heal Yourself*. Carlsbad, CA: Hay House; 2001.
111. Hsu C, Phillips WR, Sherman KJ, Hawkes R, Cherkin DC. Healing in primary care: a vision shared by patients, physicians, nurses, and clinical staff. *Ann Fam Med*. 2008;6(4):307–314.
112. Coe RM. The magic of science and the science of magic: an essay on the process of healing. *J Health Soc Behav*. 1997;38(1):1–8.
113. Antonovsky A. The salutogenic model as a theory to guide health promotion. *Health Promot Int*. 1996;11(1):11–18.
114. Lindström B, Eriksson M. Contextualizing salutogenesis and Antonovsky in public health development. *Health Promot Int*. 2006;21(3):238–244.
115. Jonas WB, Chez RA, Smith K, Sakallaris B. Salutogenesis: the defining concept for a new healthcare system. *Glob Adv Health Med*. 2014;3(3):82–91.