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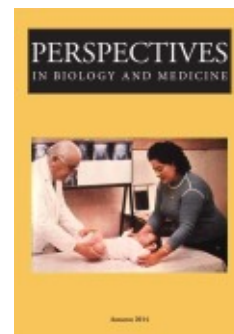
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GEORGE ENGEL'S EPISTEMOLOGY OF CLINICAL PRACTICE

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ABSTRACT George Engel's (1913–1999) biopsychosocial model, one of the most significant proposals for the renewal of medicine in the latter half of the 20th century, has been understood primarily as a multi-factorial approach to the etiology of disease and as a call to re-humanize clinical practice. This common reading of Engel's model misses the central aspect of his proposal, that the biopsychosocial model is an epistemology for clinical work. By stating the simple fact that the clinician is not dealing directly with a body, but first, and inevitably, with a person, Engel challenged the epistemology implicit in the classical clinical method—a method predicated on the possibility of direct access to the body. Framed in epistemological terms, the issue at stake is not the need to complement medical science with humane virtues, but rather to acknowledge that the object of clinical practice is not the body but the patient.

THIS ARTICLE IS INTENDED to revive, through a critical reinterpretation, the biopsychosocial model of George Engel (1913–1999). Engel's first description in 1977, was very broad, encompassing too many aspects of medicine. In his later work,

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he focused his model as an epistemology for clinical medicine. However, what medicine mostly retained were minor aspects of the 1977 article, namely a multi-factorial approach to the etiology of diseases and a call to complement biomedicine with a psychosocial concern in order to re-humanize medicine. We suggest that, properly understood as a clinical epistemology, Engel's model retains its transformative potential for contemporary medicine.

Our discussion begins with a critique of Engel's seminal article, in which he posited his "biopsychosocial" model as a challenge for the "biomedical" model of medicine on three fronts: medicine as the science of diseases (a body of theoretical conceptions on their causes and treatments), medicine as a sociopolitical construct, and medicine as clinical practice. We argue that the assault on the first two fronts was rather feeble, and that Engel's challenge was most compelling on the latter, clinical front. Our contention is that the "biomedicine" being challenged here was implicitly the classical clinical method, grounded in the anatomo-clinical epistemology of the Paris school. Within the classical model, the clinician and the anatomical pathologist attend to the same epistemic object—namely, the physical body as the container of the disease. Engel argued, however, that the epistemic object of the clinician is not the body, but the person.

For the most part, medicine has overlooked the epistemological aspect of Engel's proposal and has instead interpreted it as an etiological model pertaining to the nature of diseases and as a call to re-humanize medicine. We propose a reinterpreted biopsychosocial model as a general framework for clinical practice.

ENGEL'S 1977 ARTICLE: AN ALL-ENCOMPASSING MODEL

In 1977, *Science* published "The Need for a New Medical Model: A Challenge for Biomedicine." In this widely known paper, Engel outlined what he called a "biopsychosocial model" for medicine. He stated at the outset that he was dealing with models of disease, but he discussed other aspects of medicine as well. The dominant model was, according to Engel the "biomedical model, with molecular biology [as] its basic scientific discipline" (13). The biomedical model assumed diseases "to be fully accounted for by deviations from the norm of measurable biological (somatic) variables," a perspective that was reductionist, in that it claimed that "the language of chemistry and physics [would] ultimately suffice to explain biological phenomena" (130).

Engel presented four arguments that challenged the dominant biomedical model. We briefly address each of these, arguing that only the fourth is a serious challenge for biomedicine.

Psychosocial Factors in the Causation and Course of Diseases

Engel began by observing that a biological defect constitutes "but one factor among many, the complex interaction of which may ultimately culminate in active

disease” (131). In addition to their role in causality, “psychophysiological responses to life may interact with existing somatic factors to . . . influence the time of onset, the severity, and the course of a disease” (132). Within a general systems theory formulation that Engel noted later in his paper, alterations in higher-order systems have an impact within lower-level systems. For instance, stress due to social circumstances produces effects on the body.

However, the idea of a multi-factorial, multilevel causality does not constitute a very serious challenge for biomedicine. A reductionist approach does not per se deny that diseases can result from complex interactions between the biology and psychology of the individual, and the wider natural and social environments. The concept of interactionist causality was common in medicine before 1977, under such names as the “diathesis-stress model” (see, for example, Hinkle and Wolff 1957). One could even argue that the idea has been present since the very dawn of medicine (Rigatos and Scarlos 1987). If Engel’s proposal was simply to include psychosocial factors as co-causal contributors to diseases, it did not pose a major challenge for biomedicine.

The Illness Experience and the Need for Humane Care

Engel’s second claim was that the biomedical model “leaves no room . . . for the social, psychological, and behavioral dimensions of illness,” and that the “biochemical defect [cannot] be made to account for all of the illness, for full understanding requires additional concepts and frames of reference” (130). Engel’s wording is ambiguous: it is not clear what he meant by “the illness” and its “dimensions.” However, the distinction between illness and disease was almost certainly familiar to him (see, for example, Marinker 1975; Reading 1977), and he specified that “how [the symptoms of a disease] are experienced [requires] consideration of psychological, social, and cultural factors” (132). In this sense, the “bio” can account for the disease, but the “psychosocial” is necessary to account for the illness.

While we agree with the argument, it does not constitute a challenge for biomedicine as the science of diseases: in the illness/disease frame, the disease is, by definition, the biomedical pathological process. Rather, it is a challenge to biomedicine as clinical practice, perceived to be overly technical and indifferent to the patients’ suffering. Engel referred to the public’s belief that “physicians are lacking in interest and understanding, are preoccupied with procedures, and are insensitive to the personal problems of patients and their families,” and that “medical institutions are . . . cold and impersonal” (134). The argument is not that biomedicine is lacking in scientific coherence or legitimacy: “the public” wants something from medicine beyond the “gains accrued from biomedical research,” namely, elements of the humane, such as warmth, intimacy, solicitude and compassion. Thus, the challenge for biomedicine is not that it is flawed, but that it is incomplete. Engel implied that a biopsychosocial model would add humane characteristics to biomedicine.

We will make the case that these first two arguments of Engel's, which we refer to as *etiologic* and *humane*, are the primary legacies of the biopsychosocial model; as a result, the core, epistemological aspect of his proposal has been obscured.

Psychosocial Factors in the Definition of Disease and Sickness

Drawing on socio-anthropology, Engel referred to the “sick role”—that is, the notion that psychosocial factors influence whether one considers oneself, or is viewed by others, as sick (Fabrega 1975; Parsons 1951). By underlining the notion that the boundaries of diseases are “diffused by cultural, social and psychological considerations” (132), Engel challenged an extreme, essentialist biomedicine that defined in strictly biomedical terms the boundaries of the category “disease” and the specific taxonomic criteria for specific diseases. However, most reductionists who have some interest in such ontological issues would probably acknowledge that biomedical arguments are not sufficient to define a state as a disease (Engle 1963; Wakefield 1992). Engel also briefly discussed how psychosocial factors have an impact on whether an individual enters health care. In doing so, he addressed the consequences of a naïve (or cynical) reductionism, one that may result in an involuntary (or deliberate) blindness to the sociopolitical dimensions of health care. This line of philosophical challenge is aimed at biomedicine as a sociopolitical enterprise.

Clinical Work Is Not Biomedicine

A final argument against biomedicine was that “establishing a relationship between particular biochemical processes and the clinical data of illness requires a scientifically rational approach to behavioral and psychosocial data, for these are the terms in which most clinical phenomena are reported by patients” (132). In other words, the object of clinical work cannot be reduced to biochemical processes, and therefore a physicochemical paradigm cannot alone provide the proper framework. A “scientific rational approach” to “clinical data” has to be grounded in a “biopsychosocial” model. This is Engel's most compelling challenge. It is aimed at biomedicine as an epistemological model of clinical practice.

NAISSANCE DE LA CLINIQUE

Engel did not directly address the question of what clinical biomedicine is—that is, the biomedical model of clinical practice. We contend that the model implicitly challenged is the now classic clinical method, developed by the Paris school. Michel Foucault (1963) described this “birth of the clinic” as an epistemological break occurring at the turn of the 19th century. The *clinique* has its foundation in the anatomo-clinical method. The essence of this method is to compare the findings in the dead body with the findings on the living body; the clinical part of the method deals with the living body. The art of the clinician is to make the body speak, in

order to gain specific knowledge from the outside, about what is going on inside. This knowledge is gained by directing specific questions to the body and its bearer, and by probing the body with the senses and various tools, such as the stethoscope. In the words of Foucault:

pathological anatomy compels the clinic to question the body in its organic density, and to bring to the surface what was given only in deep layers. . . . To establish these signs, artificial or natural, is to project upon the living body a whole network of anatomo-pathological mappings: to draw the dotted outline of the future autopsy. The problem, then, is to bring to the surface that which is layered in depth; semiology [will be] the set of techniques that make it possible to constitute a *projective pathological anatomy*. (162, original emphasis)

The *clinique* delineates the knowledge being sought, the means to gain it, and the limits of the approach: in a word, it constitutes an epistemology. The knowledge pertains to what is going on inside the patient's body, the anatomical morbid process. The means include history taking and the physical examination. The limits are related to silent diseases or opaque patients. In this perspective, laboratory tests, imaging, and the other investigative tools of contemporary medicine are but the extension of the clinician's art of seeing into the patient's body: they are on an epistemic continuum. The clinician and the cardiogram are dealing with the same object—the body and the diseases therein, but not the patient as a person. Indeed, in this approach, the patient is implicitly conceived as a potential obstacle. Obtaining the patient's history becomes a subtle cross-examination, and physical findings have precedence over the patient's words. Clinical work resembles the criminal investigations of Sherlock Holmes depicted by Arthur Conan Doyle, himself a physician (Ginzburg 1980). The good clinician will not let the patient interfere with the task of finding out what goes on in the body. At the core of the *clinique* is the belief that clinical skill can make the patient transparent, that *direct access* to his body is possible. The epistemic object is not the patient but the patient's body.

The *clinique* has been criticized for its dehumanizing effect on the patient, and various remedies have been suggested, such as complementing it with empathy, compassion, or a patient-centered approach. However, as will become clear in the next section, Engel's critique was epistemological, aimed at the assumption that the clinician can gain direct access to the patient's body. For Engel, the access could only be indirect. The issue at stake here is not primarily a moral problem: Engel was not saying that a physician *ought* to consider the patient as a person rather than a body, but that, irrespective of the physician's particular moral viewpoint, the prime object of clinical work is inevitably the patient.

TOWARD A CLINICAL EPISTEMOLOGY

Three years after his *Science* article, Engel discussed the case of a man experiencing an acute myocardial infarction to illustrate the clinical application of his model, clearly intended for medicine in general (Engel 1980). There, as well as in his subsequent work, Engel's scope was narrower than the broad theoretical sweep of 1977. From then on, his concern would be medicine as clinical practice:

The most obvious fact of medicine is that it is a human discipline, one involving role- and task-defined activities of two or more people. . . . The crippling flaw of the [biomedical] model is that it does not include the patient and his attributes as a person, as a human being. Yet in the everyday work of the physician the prime object of study is a person. . . . The biomedical model can make provision neither for the person as a whole nor for data of a psychological or social nature (Engel 1980, 535–36)

By contrast, Engel proposed a model in which the essence of medical practice falls squarely within the frame of science. At stake here is what Engel called the “humanness” of medicine—that is, that medicine is a human discipline, in that the object of study of the clinician is a human being. Engel pointed out that the clinician's task always begins at the “person” level:

In scientific work the investigator generally is obliged to select one system level on which to concentrate, or at least with which to begin, his efforts. For the physician that system level is always *person*, i.e., a patient. . . . Different approaches are required to gain understanding of the rules and forces responsible for the collective order of a system, whether an organelle, a cell, a person, or a community. (537–38, original emphasis)

This is a different critique from that of 1977. Engel is not criticizing the bench scientist for applying a reductionist biomedical approach to diseases. Instead, he is making the case that clinical work cannot be properly conceived in a reductionist, biomedical frame, because physicians are dealing with persons and persons are not fully accounted for by biological processes. In his subsequent work, Engel insisted that he was outlining a scientific framework for clinical work—that is, a clinical epistemology:

Particularly pertinent for medicine is its explicit attention to humanness. That alone identifies biopsychosocial as a more complete and inclusive conceptual framework to guide clinicians in their everyday work with patients. . . . feeling “sick” and “falling ill” more often begin as private experiences not necessarily knowable to anyone else. Hence, the truly scientific physician . . . must access that private world. . . . Critical is recognition that the patient is both an initiator and collaborator in the process. . . . The physician, in turn, is a participant ob-

server who, in the process of attending to the patient's reporting of inner-world data, taps into his/her own personal inner viewing system for comparison and clarification. The medium is dialogue, which . . . includes *communing* (sharing experiences) as well as *communicating* (exchanging information). Hence, *observation* (outer viewing), *introspection* (inner viewing), and *dialogue* (interviewing) are the basic methodologic triad of clinical study and for rendering patient data scientific. (Engel 1997, 522–25, original emphasis)

ENGEL'S LEGACY

The fate of Engel's biopsychosocial model in medicine can be summarized as follows. His seminal article has been widely cited, and the notion of a biopsychosocial medicine enjoyed some popularity at the end of the past century, mostly in family medicine and psychiatry (Doherty, Christianson, and Sussman 1987; Shorter 2005). It hasn't been very successful in the more technical specialties of medicine, and currently its influence seems to be waning. Engel's model has generally not been understood as an epistemology of clinical work, but rather as an etiological model of diseases, and as a call to re-humanize clinical practice. From this latter perspective, the biomedical approach to the patient is necessary but not sufficient, and therefore some "psychosocial" must be added, because it is important to be not only a highly competent physician, but a humane one as well.

Examples of the etiological reading are numerous. The Merriam-Webster online dictionary defines *biopsychosocial* as "relating to the biological, psychological and social aspects of *disease*." The Presidential Address of the 2003 Annual Meeting of the American Psychosomatic Association defines "Engel's vision" as physicians "trained in the biopsychosocial model" who "include biological, psychological, and social factors in their scientific understanding of *disease pathogenesis*" (Novack 2003). Peter White's major book on *Biopsychosocial Medicine* (2005) is subtitled "An Integrated Approach to Understanding *Illness*"; reviews of the book present Engel's model as one in which physicians "extend the biomedical model enough actually to examine the broad spectrum of *causes of medical disease*" (Dattilio 2005), or add to the biomedical model "psychological and social factors as important *contributors to the etiology*" of illness (Kroenke 2006). A recent article, asserting the contemporary relevance of Engel's model, presents it in a typical etiological fashion to explain the death of Mr. Enderby in a novel by Agatha Christie, from a myocardial infarction (*bio*), provoked by an exposure to a cat (*psycho*, Mr. Enderby being phobic of cats), planned by his greedy heir (*social*) (Adler 2009). Although examples, numerous as they may be, are not a definite proof, we believe that it is fair to say that, as a scientific paradigm, the biopsychosocial model has mostly been viewed as a multi-factorial-interactionist model of the causation of diseases.

In what we label the "humane" reading of Engel, his model is a call for the addition of humane consideration to patient care. The biopsychosocial model has

been perceived as “a humanistic alternative to the biomedical model” (Ghaemi 2010) and is a major and constant reference in James Marcum’s recent book on the philosophy of medicine, which is subtitled “Humanizing Modern Medicine” (2008a). Celebrating the “biopsychosocial revolution” in medicine, a commentator described Engel’s model as the prescription to “include the psychosocial dimensions *in addition* to the biological aspects (diseases) of all patients,” leading to “more humanistic” physicians (Smith 2002, original emphasis). But this reading of Engel is mostly implicit. “Do you want me to do a BPS interview or a *real* interview?” asked a third-year medical student at Rochester University, where Engel developed his model. For the students, biopsychosocial medicine was associated with “warm and fuzzy” communication, and had little to do with “*real* work” (Dannefer, Hundert, and Henson 2003). This understanding of the model is but one of many versions of the wider “dual discourse” within medical culture, to which we turn now to discuss the implications of our reinterpretation of Engel’s model.

THE DUAL DISCOURSE IN MEDICINE

Engel criticized the call to re-humanize medicine as “a curiously regressive romanticism” (Engel 1978, 170):

In each era . . . one finds physicians of the preceding generation praised for their humanity while physicians of the day are accused of insensitivity and ineptness in personal dealings with patients and of excessive zeal in the application of the therapeutic measures in vogue at the time. The cry always is that the “modern” physician has lost the human touch and become too mechanical or too scientific in his approach. (171)

For Engel, however, the problem was epistemological, and medicine was therefore not scientific enough. Although the prime object of study of the physician is the patient, the biomedical model is disease-oriented:

To be patient-oriented the model must include psychosocial dimensions. But even the term, psychosocial, has a strange and esoteric ring for biomedically-trained physicians. For most, “psychosocial” means problems primarily of concern to the psychiatrist or the social worker. Whatever else has to do with the patient and his care is classified as the “art of medicine” and is based on intuition, professional rules, aphorism, and maxims from the accumulated wisdom of experienced physicians. (171)

Engel discussed what he called the “humanism–science dichotomy” in many of his later articles, a dichotomy he argued could be resolved if medicine included the full human being “in its purview” (Engel 1987, 107).

Medical anthropologists Byron Good and Mary-Jo DelVecchio Good (1993) have described that same dichotomy between the art and science of medicine as a more general “dual discourse” pervasive in contemporary medicine:

When we ask medical students . . . to reflect on the meaning of being a good physician, two juxtaposed themes quickly emerge. These themes, condensed by two central symbols—“competence” and “caring”—are linked to a dual discourse characteristic of contemporary American medicine. . . . Physicians must be competent; they should also embody caring qualities. “Competence” is associated with the language of the basic sciences, with “value-free” facts and knowledge, skills, techniques, and “doing” or action. “Caring” is expressed in the language of values, or relationships, attitudes, compassion, and empathy, the non-technical or . . . “personal” aspect of medicine. (91)

According to the authors, this dichotomy is fundamental to the culture of medicine and is maintained by “the humanist critique of medical education” (94). Art and science, humanism and technique, care and cure, ethics and competence, soft science and hard science, soft skills and core skills—the divide takes on many names and is not specific to medicine (Snow 1959). Engel also criticized the “humanist” critique of medicine exactly because it was, according to him, perpetuating the divide.

We believe that Engel was not proposing a humanist critique of medicine. He was concerned with the epistemological situation of the clinician at work, whose task, because its object is a human being, is inescapably biopsychosocial. The issue is not whether disease, illness, or medicine is biopsychosocial, but rather that the patient, as a human being, is biopsychosocial, and therefore the clinical situation demands a biopsychosocial approach.

Why is this distinction—between an epistemological approach to medical practice, and a call to rehumanize medicine—important? For Engel, being “humane and empathic . . . is a requirement of scientific work in the clinical realm” and not “merely a prescription for compassion, as medical educators would have us believe” (Engel 1992, 338). The problem here is twofold. First, if the issue is framed as other than epistemological, then the argument is that a psychosocial element should be added to the biomedical part of the task, and the argument rests on moral grounds (“a prescription for compassion”). This prescriptive approach has not worked: the moralizing discourse has been heard in medicine for a long time (“in each era,” according to Engel), but its very persistence indicates that it has not produced the intended effects (see, for example, Hren, Marusic, and Marusic 2011; Kumagai 2014; Marcum 2008b). Rather, as Good and DelVecchio Good suggest, it is maintaining the very dichotomy it purports to resolve. We believe that if physicians appreciate that their epistemic object is the human subject, they can no longer relegate the human to the periphery of their interest.

Second, in the humane approach, it is implicitly assumed that physicians can treat their patients as objects and still be competent clinicians (this is deemed problematic

on moral grounds, not on clinical grounds). For Engel, however, a clinician who neglects the human nature of the patient *cannot* be competent, because the clinician's epistemic object *is* a human being. The major consequence of not appreciating Engel's epistemological dimension, then, is that the biomedical model of clinical work remains intact: the "psychosocial" is simply added to the biomedical approach. The additive approach has practical consequences. For instance, in the words of the initial proponents of the so-called "patient-centered medicine," the physician's task should be "twofold: to understand the patient and to understand the disease" (Levenstein et al. 1986, 24). In such an approach, the clinician oscillates between the "biomedical" realm of clinical competence and the "psychosocial" realm of the humane. "Understanding the patient and understanding the disease" is a catchphrase that seems to align with the biopsychosocial model, but it is deeply at odds with what Engel said: on epistemological grounds, it is impossible to access the disease without engaging the patient. Indeed, the issue is not to understand the individual "patient" in a comprehensive and exhaustive manner, but rather the person in the given clinical situation. Because the clinician is never dealing directly with a body but with a person, the "disease-centered" or "doctor-centered" approaches to the patient are simply illusory. There is no shortcut to gaining access to the disease: one gets there with the patient, not through the patient. The biomedical model of clinical work is flawed for epistemological reasons. Any approach that leaves it intact is inadequate.

CONCLUSION

Our understanding of Engel emphasizes his later works and focuses his model squarely on the clinical aspect of medicine. There is no doubt, however, that Engel, especially in the years preceding the *Science* article and the explicit formulation of the biopsychosocial model, was interested in the causation of diseases and the relationships between psyche and soma. His earlier interests, as a researcher in psychosomatic medicine, are very present in the "etiological" argument of his 1977 paper. Our reading of Engel leads us to reframe his challenge as one addressed to the classical anatomo-clinical model, rather than to biomedicine in a vague, all-encompassing sense. We find compelling reasons to do so in Engel's later work, but this is indeed a reinterpretation. We believe that Engel was saying something very simple: physicians deal with persons, and not with bodies. Their knowledge may pertain mostly to the human body and its ailments, but in their practice, their first object is the person of the patient. Therefore, the anatomo-clinical model is inadequate.

If we accept that Engel's model is a successor to the time-honored model of the Paris school, further work is needed to elaborate its utility in order to guide medical education and clinical practice. In particular, Engel's model, centered as it is on the patient, does not do justice to the dyadic, inter-subjective dimension of clinical work and to the singular situation of the clinician. The patient is not the only

“person-system” weaving the biological, the psychological and the social during the clinical encounter.

Engel was sensitive to the importance of what goes on between the physician and the patient and to the role of the physician in the clinical encounter. Many years before his *Science* article, in the 1969 textbook he wrote with William Morgan on the clinical approach, Engel commented on a variety of factors that have an impact on clinical work by influencing the clinician, including personal attitudes and psychological problems. However, Engel centered his model on the patient. We wish to reorient the gaze to encompass the clinical dyad—patient and physician in context. Certainly, the patient’s expectations, health literacy, notions of medicine, health and disease, emotional state, and many other elements are important and worthy of scientific exploration and of clinical inquiry. But a narrow focus on the patient risks framing the clinician as a pure, decontextualized diagnostic-communicational machine. Physicians’ expectations of their patients, their conceptions of what qualifies as “true disease,” their emotional state, and other characteristics of the individual physician shape clinical activity in general as well as the individual consultation. Beyond the individual, Morgan and Engel also mention the importance of “the ward as a social structure.” Physicians are embedded in highly complex contexts: their education and training comprise a process of socialization as well as the acquisition of knowledge and skills; their professional culture entails multiple, often contradictory duties; and their professional relationships are imbued with peer-pressure and rivalry, as well as bonds of loyalty. Medicine itself is a field of knowledge with shifting epistemological assumptions about the nature of evidence and the process of clinical reasoning. A sociopolitical environment shapes clinical practice, every step of the way.

Medicine needs to deconstruct not only the myth of the patient as the transparent vessel of diseases, but also that of a clinician immune to context, and embodying some essential, transcendental medical competence. Engel said that the clinician always begins with the patient at the person level; we argue here that clinicians also begin with *themselves* at the person level.

We believe that Engel’s true challenge for biomedicine was on the clinical ground. Engel proposed a clinical epistemology equal to the complexities of the clinical task, one that moves beyond a reductionist biomedical epistemology predicated on the simplistic assumption of a direct access to the patient’s body. Framed as an epistemological model, his proposal overcomes the persistent dual discourse that pervades medicine. In addition, this new formulation retains its potential to enlighten the practice of medicine.

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