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The bio-psycho-social model forty years later: a critical review

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Abstract

Since 1997, the Bio-Psycho-Social Model, proposed by George Engel, attracted the interest of clinical researchers as well epistemologists and was recognized as a turning point in the culture and praxis of medical diagnosis and treatments. According to Engel, biological, psychological as well as social events are mutually interconnected and reciprocally influenced; a paradigmatic shift in the approach to the mind-body problem. Lately, this model has received persuasive criticism that has caused a fading of its scientific reliability. This concise review focuses the core feature of Engel's position as well as the scientific controversy that followed during these forty years.

Introduction

Forty years ago a novel vision on health and disease emerged in the field of biomedicine. The Bio-Psycho-Social Model, proposed by George Engel, an American internist trained in psychoanalysis, was recognized as a turning point in the culture and praxis of medical diagnosis and treatments. Actually, until the first half of '900, the western medicine had been influenced by the Cartesian dichotomy between body and mind, but this philosophical premise was about to change. Immediately after the II World War, Ludwig von Bertalanffy, an Austrian biologist, proposed his scientific view on open systems, then included in the General System Theory (GST) (1968). The GST attempts to build a bridge between natural sciences and humanities by means of a holistic approach to scientific knowledge. About thirty years later, George Engel borrowed GST as an epistemological template in order to support his theoretical construct. This concise and selective review is focused on the core feature of Engel's BPSM as well as the scientific controversy that followed during the next forty years.

The essence of the BPSM

In 1997 George Engel published his seminal paper focused on the need for a holistic approach to health and disease, namely the Bio-Psycho-Social Model (BPSM). He borrowed the GST by Ludwig von Bertalanffy launching an intriguing hypothesis that gained a wide diffusion in the fields of biomedicine, psychology and social sciences (Suls & Rothman, 2004): biological, psychological as well as social events are mutually interconnected and reciprocally influenced. Engel moved from his thesis about a crisis of medicine descending from the"*adherence to a model of disease no longer adequate for the scientific tasks and social responsibilities of either medicine or psychiatry*". Engel argued that the biomedical model, assuming that diseases have only biological causes, hence consistent with a reductionist and physicalistic principle, is a culturally derived belief system

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"utilized to explain natural phenomena". Engel asserted that the biomedical model is far from being a scientific model because it fails to account adequately for all the data, namely the psychosocial concurrent variables of the diseases. Such a model, excluding psychosocial issues, determines a harmful separation of medicine, psychiatry, and psychology, even though these three disciplines are equally devoted to the treatment of diseases.
The most intriguing issue embedded in the BPSM is the direction of causation between biological and psychosocial phenomena: Engel, according to von Bertallanfy view, assumed that the causal connections between the bio-psycho-social domains should be intended as bidirectional, so there is no primacy of the biological domain over psychosocial domains and vice versa. This epistemological shift is more clear in the 1980 paper: from subatomic particles to the biosphere, each systemic level is part of a whole entity (Engel, 1980). Engel wrote: "*In the continuity of natural systems every unit is, at the very same time, both a whole and a part*". In Engel's view as "*nothing exists in isolation*", every system is influenced by its environment. Consequently, a so-called "*system-oriented scientist*" should be always aware of the connecting pattern that bonds the biological phenomena to the psychosocial ones. The case of "*Mr. Glover*" (Engel, 1980), a 55-year old male who developed an arrhythmia following a myocardial infarction and hence brought to an emergency department, is described to outline the model. The myocardial ischemia of Mr. Glover is intended as the end of a multidimensional process involving, at the same time, his body, his relational network, and the doctor-patient relationship. In a later paper, Engel (1997) alleges the humanistic nature of BPSM as well as its disposition to the patient's inner experience. This radical causal hypothesis is fully divergent from the orientation of biomedicine in the last decades: the BPSM implies that psychosocial events can have an effect on the biological ones. The Engel's position is, therefore, a paradigmatic change in the '900-century approach to the mind-body problem. The wide appeal of BPSM was, in my opinion, inherent to a socio-cultural movement that pervaded the western world at the end of the century. The postmodern vision of social phenomena, expressed by Bauman (2000) with his metaphor of a "liquid" society, disputes a linear and deterministic knowledge of the world. Moreover, the so-called "*post-truth medicine*" challenges the evidence-based one. However, forty years later the above mentioned Cartesian approach to the etiopathogenetic processes is still predominant, supported by an extensive amount of scientific literature. According to Evans at al (2017), "*the most enduring model of disease causation and progression is the pathological model*". This model describes the sequential progression of a disease assuming that only biological factors contribute to the pathology. Therefore, the model is linear because the disease progression occurs only in an upward direction, from the body to mind. This is the limit of the pathological model: psychological factors are considered as epiphenomena of biological processes, or, at least, concurrent variables of primitive somatic diseases. On the contrary, the BPSM highlights that the range of causes, as well as the intervention options, should include psychological and social domains. As regards the philosophical roots of the BPSM, Evans (2017) argues that it dates back to a sort of "*Biopsychosocial dispositionalism*" which describes causal pathways embracing the psychosocial variables.

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The debate on BPS model

Since the '80s, the BPSM attracted the interest of clinical researchers as well epistemologists (Frankel, Quill & McDaniel, 2003) (White,2005). These last ones formulated a number of intriguing criticisms to the biopsychosocial approach to health and disease. Fist of all, BPSM may be described as a "*portmanteau model* "(Baruch & Treacher, 1978), a *"form of inclusive compromise"* (Pilgrim, 2002) or, in my own words, an "*ecumenical model*" aimed at gathering the healing resources of biology, psychology, and social sciences. Moreover, since the turn of the century, this model has drawn other persuasive criticisms that caused a fading of its scientific reliability. The reason for this decline, according to Shorter (2005), was the great advance of drug therapies: *"the biopsychosocial model failed to address the stunning success of pharmacotherapy in the last quarter century. Engel had the misfortune to be preaching a humane approach to patients just as the pharmacopoeia was exploding with effective new drugs in a range of diseases in all of the non-surgical specialities."*. Other critics highlighted more cogent arguments. McLaren (1998), examining the Engel's proposal, suggests keeping in mind the differences between theories and models. As a model, the BPS approach should be evaluated by the mean of its assessable effects in the clinical field rather than its heuristic potentiality. Moreover, McLaren contends the legacy of GST in the Engel's model. GST describes the laws of natural systems rather than the causes of pathological processes. Pilgrim (2002) states that a pluralistic and interdisciplinary orientation of psychiatry does not descend from the BPSM, but rather from the pragmatism of modern psychiatrists. The BPSM only engendered an "*interdisciplinary cooperation*". Thus, Pilgrim rewards Engel of a strong integrative thinking in the field of behavioral sciences. Borrell-Carrió et al (2004), while defending the Engel's position, consider the value of the biopsychosocial model not in term of a new scientific paradigm, but rather in a methodological warning concerning a *"parsimonious application of medical knowledge to the needs of each patient"*. Borrel-Carrio, in order to improve the feasibility of the BPSM, highlights three critical aspects. First, the investigation of the relationship between mental and physical aspects of health should consider that the subjective experience is not only owing to the laws of physiology; Second, the circular causality principle should be confronted with a linear reasoning when considering treatment options; Third, a patient-oriented approach to the illnesses may not be universally accepted. Borrel–Carrio suggests a biopsychosocial-oriented clinical practice grounded on a subjectivity principle, supported by self-awareness, an emotional style characterized by empathic curiosity, a self-calibration as a way to reduce bias and a confidence in the emotions to assist with diagnosis and forming therapeutic relationships. Moreover, Borrel-Carrio trusts in informed intuition and in openness to communicate all clinical evidence to foster a dialogue with the patient not merely guided by mechanical application of a protocol. Ghaemi (2009) is recognized as a persuasive critic of Engel's ideas. He ascribes to the BPSM a weak and eclectic epistemology, a defensive strategy against a biomedical reductionism and an anti-humanistic position. Moreover, Ghaemi argues that the "*eclectic freedom*" of BPS epistemology risks "*to engender an undisciplined, even arbitrary approach: 'one can emphasize the 'bio' if one wishes, or the 'psycho' … or the 'social'*." Kontos (2011), affirms that *"biopsychosocial advocates use clinical biomedicine as a straw*

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man to support their argument" however, the "*biomedical dogma*" is not the primary impediment to the BPSM dissemination within the medical practices but rather its unmanageability. Kontos concedes that the BPSM "*shares many of the potential pitfalls that it attributes to clinical biomedicine*" and concludes that the complexity of contemporary medicine must be supported by different scientific models. Adler (2009), shares this opinion: the biomedical model and the BPSM are not mutually exclusive. Smith et al. (2013), evaluated the BPSM feasibility in order to implement the patient-centered practices. They pointed out three criticisms of the BPSM. First, it is not testable. It is vaguely defined and not operationalized in behavioral terms for the patient. Furthermore, the BPSM is too general and eclectic, requiring a wide amount of time-consuming information about the patient, and not applicable in the routine clinical practice. Finally, the BPSM is methodologically weak because it does not provide any operational recommendation about the process of exploring the bio-psycho-social dimensions of the disease. Hence, BPSM cannot be tested and should be only conceived as a general theory or simply a pre-scientific or meta-psychological rationale for the mind-body connection. Benning (2015) remarks that has been a growing body of literature criticizing the BPSM, by "*charging it with lacking philosophical coherence, insensitivity to patients' subjective experience, being unfaithful to the general systems theory that Engel claimed it be rooted in, and engendering an undisciplined eclecticism that provides no safeguards against either the dominance or the under-representation of any one of the three domains of bio, psycho, or social.*". In summary, some prominent authors expressed cogent criticism to the BPSM in recent years. Thus, in light of these viewpoints, the BPSM seems to be almost as useful in the field of psychiatric diseases at the price of splitting the psychosocial approach from the neo-Kraepelinian and neurobiological trend of psychiatry (Brenner 2016). Moreover, the BPSM does not improve the research about the multidimensional causative process leading to the diseases, but only suggests a comprehensive clinical approach to the patient. Therefore, this goal should be achieved by implementing the BPSM by mean of working techniques of the interview.

The BPSM credit among health professionals: a focus group

Which will be the future of BPSM in the next decades? It will depend, in my foresight, upon how much credit it will gain from young health professionals. These colleagues are, more frequently, educated according to a linear approach to the patients' illnesses. A simple, preliminary investigation on this topic was conducted to explore the attitudes toward the bio-psychosocial model of a small sample of young Italian psycho-oncologists. These professionals were selected because their peculiar field of intervention, namely the application of psychosocial skills in the cancer treatments, is frequently oriented by the BPSM, according to an integrated approach the treatments of these illnesses (Holland, 2001). Moreover, this model is well known by leading Italian psycho-oncologists as a conceptual framework in their clinical contexts. So, ten psycho-oncologists who were about to achieve a postgraduate master's degree in psycho-oncology were asked to read and discuss the Engel's papers during a journal club session (Ebbert, 2001). They should point out the strong and weak points of the model. At the end of the session, the shared opinions of this group were expressed as

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follows.The BPSM was evaluated as too much generic in its theoretical framework and scarcely useful in clinical practice. All participants agreed about the heuristic implication of the model, but suggested to improve it by specific interview protocols.

References

[1] Adler R.H., (2009), *Engel's biopsychosocial model is still relevant today,* Journal of Psychosomatic Research 67, 607–611

[2] Bauman Z., (2000), *Liquid Modernity,* Blackwell Publishers, UK

[3] Baruch G. & Treacher A., (1978), *Psychiatry Observed*, London: Routledge & Kegan

[4] Benning T. B., (2015), *Limitations of the biopsychosocial model in psychiatry*, Advances in Medical Education and practice, 6: 347-352

[5] Borrell-Carrió F., Suchman A. L.,Epstein R. M., (2004), *The Biopsychosocial Model 25 Years Later: Principles, Practice, and Scientific Inquiry*, Ann Fam Med, 2 (6): 576-582

[6] Brenner A. M., (2106), *Revisiting the Biopsychosocial Formulation: Neuroscience, Social Science, and the Patient's Subjective Experience*, Acad Psychiatry, 40:740–746

[7] Ebbert J., Montori V. M., Schultz H.J., (2001), *The journal club in postgraduate medical education: a systematic review.* Med. Teach. 23 (5):455-61

[8] Engel G. L., (1977), *The need for a new medical model: a challenge for biomedicine*, Science 196: 129-136

[9] Engel G. L., (1980), *The clinical application of the biopsychosocial model*, American Journal of Psychiatry, 137:535-544

[10] Engel G. L., (1997), *From biomedical to biopsychosocial: being scientific in the human domain*, Psychosomatics, 38:521–528

[11] Evans D. W., Lucas N., Keryy G., (2017), *The form of causation in health, disease and intervention: biopsychosocial dispositionalism, conserved quantity transfers and dualist mechanistic chains*, Med. Health Care and Philos, (20) 1:1-11

[12] Frankel R., Quill T., McDaniel S. eds, (2003), *The Biopsychosocial Approach: Past, Present, Future,* University of Rochester Press

[13] Ghaemi S. N., (2010), *The Rise and Fall of the Biopsychosocial Model:*

Doi: 10.23823/jps.vlil.14

Reconciling Art and Science in Psychiatry, The John Hopkins University Press, Baltimore

[14] Holland J. C., (2002), *History of Psycho-Oncology: Overcoming Attitudinal and Conceptual Barriers*, Psychosomatic Medicine, 64:206–221

[15] Kontos N., (2011), *Perspective: biomedicine-menace or straw man? Reexamining the biopsychosocial argument*, Acad Med; 86:509–15

[16] McLaren N., (1998), A *critical review of the biopsychosocial model*, Australian and New Zealand Journal of Psychiatry, 32:86-9

[17] Pilgrim D., (2002), *The biopsychosocial model in Anglo-American psychiatry: Past, present and future?*, Journal of Mental Health, 11, 6, 585–594

[18] Shorter E., *The history of the biopsychosocial approach in medicine: before and after Engel*, in White P., Biopsychosocial Medicine: An integrated approach to understnding illness, Oxford University Press

[19] Smith R. C., Fortin A. H., Dwamena F., Frankel R. M., (2013), *An evidence-based patient-centered method makes the biopsychosocial model scientific*, Patient Education & Counseling 91, 3:265–270

[20] Suls J. & Rothman A., (2004), *Evolution of the Biopsychosocial Model: Prospects and Challenges*, Health Psychol. (23), 2:119-125

[21] White P., (2005), *Biopsychosocial medicine – an integrated approach to understanding illness*, London: Oxford University Press