

Biopsychosocial model of illnesses in primary care: A hermeneutic literature review

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ABSTRACT

Biopsychosocial model is a useful worldview for primary care or family doctors. However, it is often considered as impractical or too complicated. The objective of this study is to review the implementation of the biopsychosocial model in clinical practice, and its contributions to clinical outcomes. Hermeneutic circle literature review was conducted to provide experiential learning in an attempt to understand biopsychosocial model, first developed by George Engel. Literature search started with review articles in Medline and Scopus as search engines. Citations from previous articles, editorials, and research articles were identified and interpreted in the context of the knowledge derived from all identified relevant articles. The progress of biopsychosocial model has been slow, and primary care doctors do not implement biopsychosocial medicine in their practice, while biomedical thinking and approach are still the dominant model. Biopsychosocial research addressed chronic illnesses and functional disorders as conditions in need for biopsychosocial model implementation. As payment scheme, clinical guidelines and clinical performance indicators are biomedically oriented, there is no incentive for primary care doctors to adopt biopsychosocial model in their practice. Workload and lack of competence in primary care may hinder the implementation of biopsychosocial model. Biopsychosocial model helps primary care doctors to understand interactions among biological and psychosocial components of illnesses to improve the dyadic relationship between clinicians and their patients and multidisciplinary approaches in patient care. Biopsychosocial model potentially improves clinical outcomes for chronic diseases and functional illnesses seen in primary care.

Keywords: Biopsychosocial model, chronic disease, functional illness, primary care

Introduction

Primary care doctors provide the first contact for persons with undiagnosed health concerns as well as continuing care of varied medical conditions. Clinicians in primary care offer integrated and accessible health-care services. They are accountable for addressing a large majority of personal health care needs,^[1] and become the first resort for basic medical services among people with health problems. Patients, who visit their primary care doctors or family physicians, often

complain undifferentiated illnesses. Understanding symptoms expressed by patients only based on bodily concepts, such as pathophysiology of diseases and derangement of tissues or organs (biomedical model) was considered as reductionist and unscientific by Engel.^[2] The biopsychosocial model was developed by Engel based on general systems theory extended to include a living system of human interest.^[3,4] It is assumed in the biopsychosocial model that disease or illness outcome is attributed to the intricate blend of biological, psychological, and social factors described in systems hierarchy^[5] from molecules to the universe with the patient at the central interfaces in the hierarchy. Family medicine has served as champion of the biopsychosocial model as part of the worldview of the discipline.^[6]

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The biopsychosocial model is an ideal representation of science and humanism in medical practice, although many argue that the model is hard to implement.^[7] Mind, body, and social environment are difficult to integrate seamlessly in patient care. Patients experience unique biopsychosocial realities, and hence adopting biopsychosocial model in every single patient is a formidable task. The dominant model of disease is still biomedical, with molecular biology as the main scientific discipline.^[8]

The purpose of this review is to identify prospects to implement biopsychosocial model or approach in clinical encounters, to enhance the quality of patient care and to improve clinical outcome. The biopsychosocial model needs multidisciplinary approach,^[9] while at the same time, the dyadic relationship between a physician and her or his patient requires better interactive skills cultivating empathy and compassion, as small changes in the interaction may cause big impacts in biopsychosocial outcomes.^[10] Research in biopsychosocial determinants of illnesses and their treatment should illuminate the implementation of the biopsychosocial model in conditions where it is needed most.

Methods

Hermeneutics circle was adopted to review the literature pertaining to biopsychosocial model first developed by George Engel. The process of the hermeneutic literature review is iterative and consists of two main steps as follows: the search and acquisition of articles and the analyses and interpretation of articles obtained.^[11,12] The gradual development of a body of literature increased understanding and insight concerning the biopsychosocial model. The understanding of an article is influenced by other relevant articles while reading a relevant article contributes to the knowledge about the issue addressed by the whole body of the literature. A literature review is a work in progress, there is no final understanding of the relevant literature, but continuous re-interpretation of the knowledge contained in the existing literature. Less structured approach in the literature review enhances dialogical interaction between the literature and the researcher, encourages critical assessment and supports argument development.

Starting with Medline as a search engine, literature search with “biopsychosocial AND Engel” as keywords resulted in 48 entries, including 8 articles written by George Engel from 1977 to 1997. Searching in Scopus with “biopsychosocial AND Engel” produced 94 entries, including 22 review articles and two editorials.

Results

In a landmark paper in *Science* (1977) entitled “the need for a new medical model: a challenge for biomedicine” George Engel criticized the reductionist biomedical model of patient care, which regards patients as disease-based objects, ignoring the possibility that the subjective experiences of patients are

important for clinical care practice and research [ibid 2]. Engel proposed biopsychosocial model, taking into account the patient as a person and the social context where he or she lives, including the existing health-care system [ibid 5], in the understanding of the etiology of disease and humanism in medical practice. The biopsychosocial model was prescribed according to the general system theory as explained by von Bertalanffy.^[13] Systems theory, which underlies the biopsychosocial model, orders the world into a systems hierarchy from the most elementary particles to human person, to social phenomena and the universe. Central to systems theory is the concept of emergence that the properties of each higher or more complex level are not explainable by their components at a lower level. The influence of biopsychosocial model permeates beyond psychiatry and psychosomatic medicine, and includes medicine in general. Further articles by George Engel focused biopsychosocial model of clinical implementation of the model and education of professionals about biopsychosocial approach in clinical care.^[14,15]

Slow progress of biopsychosocial model

Forty years after the publication of Engel’s article in 1977 on biopsychosocial model, little work has been carried out to elaborate the model as the foundation of clinical practice, research, and education.^[16] Given the initial enthusiasm toward biopsychosocial model, it is expected that the model could have been widely adopted, while in reality there is no solid guidance ever developed to implement the model. Medicine is still heavily preoccupied by biomedical thinking, in which disease can be understood independently from the patient suffering from it, and can be explained by abnormal molecular, pathological, and clinical markers observable to the physicians.^[17] Biopsychosocial model is neglected or inadequately applied in clinical practice, especially the sociocultural factors.^[18] Biological, psychological, social, and spiritual dimensions of illnesses are rarely considered as an integrated whole in most clinical encounters.^[19]

Critics to the biopsychosocial model indicate that the application of the model needs thorough evaluation of the psychological, behavioral, sociocultural, and spiritual dimensions of patient’s problems, which demands tremendous efforts of the physicians, already overburdened with clinical, administrative, and possibly research tasks. For some diseases with demonstrable structural changes in tissues and organs, such as fracture and laceration, the biomedical approach may be the most appropriate. On the other hand, functional illnesses with clear pathophysiology or without pathological changes due to known diseases, are more amenable to biopsychosocial approach.^[20]

Constraints to implementing biopsychosocial model are not only due to a shortage of time needed for clinical case management. Comprehensive biopsychosocial evaluation and patient care are time-consuming, and need better competence among doctors in performing biopsychosocial practice.^[21] The scarcity of psychological, social, and spiritual components of patient care is consistent with the common beliefs that operational definition

of biopsychosocial model for an individual patient is hard to formulate.^[22] Greater efforts in biopsychosocial model of practice are not well compensated in a case-based reimbursement or diagnosis-related group system. Health care spending is geared mostly to biomedically oriented care [ibid 8, p. 2]. Payment system focusing on efficiency and cost containment has driven physicians to emphasize diagnostic workups and management of biomedical components of patient care, especially those within the reimbursement package,^[23] while psychosocial and spiritual care are unpaid.

Biopsychosocial model of chronic illnesses

Studies addressing biopsychosocial application suggest that chronic conditions are examples where integrated or holistic biopsychosocial model could be implemented. Biopsychosocial care is considered to be essential, but challenging^[24] for patients with chronic illnesses. However, performance indicators for medical care are formulated only in terms of biomedically oriented guidelines and standards.^[25]

The biopsychosocial model of chronic pain describes the experience of pain, which is originated from the physiologic stimulus (nociception and neuropathic) and modulated by the psychological and socioeconomic context of the patient.^[26] Multidisciplinary approaches to the management of chronic pain, such as empowering patients to manage pain, improving pain-coping resources, and reducing disability, and emotional distress-related to pain could be implemented through a variety of effective self-regulatory, behavioral, and cognitive techniques.^[27] The biopsychosocial approach deals with pain as an illness, not a disease, with the main purpose of enabling patients to actively participate in the management of their illnesses.

Long-term conditions, such as diabetes and chronic obstructive pulmonary disease (COPD), are associated with biopsychosocial processes leading into health problems, for example, depression and anxiety, and other comorbidities. Self-management to control diabetes include complex tasks, namely adherence to medication, monitoring of blood glucose, nutrition adjustment and weight control, exercise, foot care, and coping with the illness and its complications.^[28,29] Biopsychosocial model empowers patients as persons, who actively participate in managing their illnesses. Patients with COPD with more severe breathlessness, anxiety and depression reported lower subjective health status.^[30] The way COPD patients make sense of their illness helps them in adjusting self-management to improve disease outcomes.^[31]

Biopsychosocial model in functional disorders

Using the biopsychosocial model to explain functional disorders, such as irritable bowel syndrome, fibromyalgia, and chronic fatigue syndrome, is commonly done. Irritable bowel syndrome is a chronic disorder, characterized by recurrent abdominal pain, associated with altered bowel habit (diarrhea, constipation, stool urgency or frequency, bloating, and flatulence) with no known structural abnormalities. The disorder is frequently

seen in primary care practice, with probably complex and poorly understood etiology. The biopsychosocial approach in the treatment of irritable bowel syndrome^[32] includes psychopharmacology (antidepressant and anti-anxiety) and psychotherapy (cognitive behavioral therapy, dynamic psychotherapy, and hypnotherapy).

Fibromyalgia is a syndrome with highly variable symptoms and severity, often characterized with chronic widespread pain and stiffness for at least 3 months, fatigue, sleep difficulties, and disturbed memories.^[33] Management of fibromyalgia has to be flexible and multimodal using biopsychosocial approach.^[34]

Chronic fatigue syndrome is a condition characterized by fatigue, pain, cognitive impairment, and sleep disturbance. Neither psychiatric disorder alone nor pathophysiological factors could sufficiently explain the condition.^[35] There negative consequences, such as stigmatization, to classify chronic fatigue syndrome as a mental illness.^[36] Biopsychosocial model serves the most comprehensive way to understand and manage chronic fatigue syndrome.

Conclusion

Biopsychosocial model is not an advocate for Mind-Body Unity, unlike basic research trying to unravel psycho-neuro-immunological or psycho-neuro-endocrinological pathways of diseases and their treatment. The model emphasizes intricate blend of biological and psychosocial dimensions of medicine. Primary care doctors may use biopsychosocial model to improve clinical outcomes, through creating awareness on the interactions among biological, psychological, sociocultural, and spiritual factors, and to enhance self-management of patients' illnesses through dynamic and dyadic doctor-patient relationship and multidisciplinary approach of patient care. Biopsychosocial model is particularly useful to address chronic diseases and ill-defined illnesses to which patients mount unique responses.

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Conflicts of interest

There are no conflicts of interest.

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