

The Biopsychosocial Model:
A Historical Literature Review as it Applies to Health Psychology

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Abstract

The history and creation of the biopsychosocial model and George Engel's contributions to this methodology was a core component in the development of health psychology as a scientific field. This model focuses on the effect a patient's subjective experience has on his or her health in both a positive and negative light. The historical evolution of psychology in the medical field and the challenges, implications, and additions to the biopsychosocial model are discussed. The history of Division 38-Health Psychology into the American Psychological Association, the evolution of the biopsychosocial model and current trends in health psychology are reviewed.

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Health psychologists refer to the biopsychosocial model as the conceptual basis for their practice, research, and policy making (Suls and Rothman, 2004).

This theory looks at health and illness as a combination of a variety of contributing factors such as genetic predisposition, lifestyle factors, family relationships, social support, and behavior. (Lopez and Jones, 2006; Suls and Rothman, 2004).

This paper addresses historical research questions about the development of health psychology as a result of the knowledge gained from studies in “History and Systems of Counseling and Psychology”. The rationale for this paper is the importance of understanding how the field of health psychology has evolved and the potential for future scientific growth. A literature review of the history of the biomedical and psychology fields demonstrates how the combination of these fields, has and will, continue to benefit patients and healthcare systems. Dr. George Engel’s career, contributions, and his biopsychosocial model are reviewed. The progression of the biopsychosocial model and the evolution of health psychology’s growth into specializations including future applications for health psychology are also reviewed.

Brief Historical Overview

Western medicine historically has had a very biological approach in how doctors and nurses treated their patients, whereas the field of psychology had evolved from studying the mental and biological phenomenon of the human

mind. These fields remained separate specializations of study in Western and European cultures, yet they had coexisted together in Native American, Latino, and Asia cultures for centuries. In Native American cultures, specifically the United States, American Indians on the Western Plains had their own definition of wellness and health. Health was not defined only in the physical manner; rather it was encompassed in a circle which represented the harmonious unity of the mind, body, and the spirit (Sokoloff and Hubbard, 1998). The consideration of mental health was not excluded from medical procedures as Native American doctors performed rituals that appealed to the psyche of the patient as well as the physical treatment of the biomedical ailment.

European and North American doctors dismissed the health practices of the Plains Indians as uncivilized and beneath the level of skill and science that they believed was demonstrated in their medical practices (National Library of Medicine, 1998). Therefore, there was a gap between native and western medicine as there was an inability at the time for physicians to see a person as a whole entity rather than just a disease or dysfunction (Frankel, Quill, & McDaniel, 2003).

Throughout the late 1800s and mid-1900s two prominent professional associations were developing separately. In 1847 through 1900 the American Medical Association (AMA) was founded by Nathan Davis to establish codes of ethics, education standards, and to begin research practices (AMA, 2007). As the AMA was formalizing their organization Stanley Hall worked to form the American Psychological Association (APA) in 1892 and it became formalized in

1900 (APA, 2006). The APA developed charter divisions such as clinical psychology, psychology of adulthood and old age, abnormal psychology and psychotherapy, and theoretical-experimental psychology by 1953 (APA, 2006). During the same time frame the AMA was also developing specialties such as family health, otolaryngology (head and neck surgery), and archives for pathology and laboratory medicine (AMA, 2005). The AMA (2005) began to focus on policy and public health related issues in the 1950s through the 1970s and during this time the APA (2006) began to develop a wide variety of specialty focused divisions that were new to the field of psychology such as psychopharmacology, psychology of women, and school psychology. During this time a medical doctor, George Engel, began to notice what he believed to be a gap in biomedical research in which the patient's psyche and personal were neglected during treatment.

Dr. George Engel, Founder of the Biopsychosocial Model

Dr. George Engel was able to see the how patient's needs were not being met by medical procedures alone; psychologically patients needed attention as well. Historically Engel is the person whom clearly identified this gap and he created a model that humanized the practice of medical research (Borrell-Carrio, Suchman, & Epstein, 2004). In the early 1950s a significant natural study on an infant named Monica was performed by Dr. Engel and his colleague, Dr. Reichsman (Brown, 2000). Monica had to be fed through a fistula through her stomach due to birth complications. Engel and Reichsman were able to observe that when strangers came to Monica's bedside to perform their medical duties

she demonstrated a decrease in the secretion of gastric juices, which given her condition was a negative reaction. When Reichsman, who was a familiar face to Monica, would come to her bedside she would display happiness and the secretion of gastric juices increased significantly. The study was presented in 1955 to the American Psychosomatic Society, the American Psychoanalytic Association, and at a symposium for the Journal of Psychoanalytic Association and this created a stir in the biomedical community as it demonstrated a relationship between psychological emotions and physical recovery (Brown, 2000). This classic study was followed for 46 years until Monica became a grandmother with good health. Additionally, this study helped coin the now popular terms of *conservation-withdrawal*, *giving up-given up*, and *helplessness/hopelessness affect* (Dowling, 2005).

Engel continued his research on the effects of the social situations and psychological states his patients had on their overall biomedical health. In 1968 he published an article on the *giving up-given up complex*. In this article he published the conclusions of his study in which he examined the life settings of patients who had fallen ill. Engel (1968) concluded that prior to the onset of illness the patients had displayed psychological disturbances such as a feeling of being unable to cope with life's circumstances which resulted in biological changes that may have altered the patients' ability to defend off pathogens resulting in the development of disease. Engel identified five contributing psychological characteristics which were a feeling hopeless or helpless, a decrease in positive self-image, loss of gratification with the roles they play in life

with others, blending emotions from the past with the present and projecting them on the future, and focusing on and recalling prior memories of when they had wanted to give up. These symptoms became known as the *giving-up-given-up complex* and became a foundation for the study of the biopsychosocial model and health psychology.

The early 1970s was an active and important time for George Engel. He became an advocate for maintaining high standards for medical students as he did not want to see a dilution in the quality of medical education. In 1972 Engel advocated to add the teaching of the elements of clinically approaching patients to the medical curriculum and argued that a proposal to decrease the undergraduate period to 3 years was going to cause significant problems for the next generation of physicians. The curriculum was not reduced to three years in part due to his recommendations and the elements of clinically approaching patients were incorporated into the curriculum, although it was not a major topic of study. Engel also seemed to have foresight in recognizing the emerging important role patients would have in managing their own healthcare. Engel explained to his colleagues at the University of Rochester and at the American College of Physicians that now, in 1972, they were entering a period in which adequate health care was no longer a privilege, rather it was now a right of the patient.

Engel continued to work to define the patient-physician relationship to new and mature physicians. Engel (1973) explained that physicians must listen to their patients so that they can begin to systematically understand the nature of

their ailments and realize that regardless of their bedside manner, the physician is the primary influence on the patient and he or she must hold that responsibility in the highest regard. Engel continued to challenge the healthcare system by explaining how transactions in the system should be designed with the understanding that healthcare, as a business, is unique and very different from other commercial transactions and ventures (1973). Whether he was advocating for improved educational systems or improved healthcare programs he always returned to his idea that none of these issues could be resolved without understanding that the medical system must look at the patients as a whole, and not just a biomedical data point.

Engel began to publish more specific examples of the psychological and sociological effects on biomedical health in 1976 and 1977. Engel (1976) began to quantify the predictive values of psychological variables for diseases and death. He found that psychological variables that showed a greater predisposition to illness were not random; rather there were certain predictable patterns. However, these variables were not repeatable across all illnesses yet different repeatable patterns for different disorders existed. One example of this is the predictive value of Type-A personalities and the ratio of coronary disease (Engel, 1976). Shortly after these studies Engel published his biopsychosocial theory in which he defined the idea that biological, psychological, and social processes are critical and integral to overall health. The physicians' role, under this new model, was to listen to their patients and place caring for the patients at the same level as diagnosing biomedical issues (Fink, 2004). As the biopsychosocial model

grew, Engel realized that there would be transitions needed to bring the biomedical community to a place in which they could integrate his theories. He realized that there was not a systematic method for training doctors to change their thinking when they interacted with patients from that of *taking a history* to the psychological view of *conducting an interview* (Engel, 1989).

The 1980s were not as active for Engel as the seventies were as there was a feeling in the medical community that full acceptance of the biopsychosocial model would take a while before it could evolve into more than a theory (Brown, 2000). However, his research was well respected and the biopsychosocial model did not lose complete ground with the medical and psychological community. George Engel passed away in 1999 and his son, Peter Engel (2001) reflected upon his life as a man married and committed to his wife of 60 years, an innovative thinker, and an outstanding teacher. Many students of Engel have written memorandums of their experience with Engel including Fiscella. Fiscella (2005) fondly recalls the true message of Engel's biopsychosocial model which was if one allows patients to open up to their physicians about his or her lifestyle, family, and personal story, very relevant clues that can help with diagnoses and recovery would be revealed to the physician.

Biopsychosocial Model Evolves

The biopsychosocial model, as brought to the forefront of biomedicine and psychology by Engel, made advances in the connection of biological, psychological and social processes (Suls & Rothman, 2004). After 30 years,

according to Suls and Rothman, this model has become the metatheoretical assumption for health psychologists. Despite multiple empirical studies showing the positive relationship between emotional and psychological patterns with the progression and management of diseases or health a recent study stated that 50% of U. S. medical schools still only included less than 40 hours of curriculum focused on the principles of health psychology or psychosomatic medicine for medical students (Suls & Rothman, 2004).

However, the medical community has not withheld its thoughts and recommendations on how to further the biopsychosocial model. Suls and Rothman (2004) discussed several recommendations starting with the need to forward the biopsychosocial model from a theoretical system to one a system with greater linkage to everyday medical practice. Additionally they recommended addressing diversity and cultural issues with the patient population, increasing the collection and distribution of data surrounding the interaction between mental health and illness prevention, more focus on discovery in the field of health psychology rather than moving into the hypothesis testing mode, and finding a more effective way to communicate research into practice and policy (Suls & Rothman, 2004). An additional recommendation was to challenge the fact that the relationship between a doctor and a patient is not that of an observer and an observed; there are greater complexities in this relationship that should be researched and addressed (Biederman, Yeheskel, & Herman, 2005). Recommendations such as these stem from the fact that Engel developed his model during a time in which the biomedical field was advancing

rapidly and the subjective side of science was not receiving as much research, focus, or attention (Borrell-Carrio, Suchman & Epstein, 2004).

Although there have been many successes with the application of the biopsychosocial model in Engel's prime, many physicians and scientists felt that there was more discussion and theory associated with the model rather than quantifiable applications (Ader, Brown, 2004). The pressure of applying the biopsychosocial model in daily practice lends to challenges and there are questions as to changing the concept of medical and psychological treatment. (Hepworth & Cushman, 2005). With the advancements in medicine and sociobehavioral sciences in the 1980s and 1990s, medical practitioners felt increased stresses associated with their existing responsibilities and physicians began to speak out regarding the frustration they felt trying to manage their patient case loads (Mauksch, 2005). Trying to implement the biopsychosocial model into an already high pressure environment simply added to their stress levels (Biederman, Yeheskel, & Herman, 2005). Mauksch (2005) interviewed 1,700 primary care physicians and found that the average face-to-face visit between patient and physician was 15 minutes. Couple the time limitations with challenges of a lack of education for physicians in graduate school on the biopsychosocial model and a lack of readily available diagnostic systems for biopsychosocial disorders, the challenges and frustrations physicians felt when trying to implement this model became more apparent (Hepworth & Cushman, 2005). Although it was politically correct for physicians to state that they practice medicine while incorporating the biopsychosocial model, it seemed that the

manner in which the model was practiced varied given the time constraints of the physician (Stein, 2005). Further, Stein stated that the model was viewed as more of an add-on to current medical practice rather than the integration that Engel originally envisioned. Some physicians, as a result of realizing the challenge of practicing the model given their time restraints, decided to assess their own model of patient care and came to the conclusion that cramped schedules were a factor leading to the dissatisfaction patients had with the level of care they received from their primary care physicians (Scherger, 2005). Biomedical practitioners acknowledged that Engel's model was focused in the right direction, but in order to find a degree of success, healthcare must evolve into a model that includes the integration of medical delivery and encourages the collaboration of cross-functional team members and medical specialists (Seaburn, 2005).

Health Psychology Today

The challenges and criticisms surrounding the biopsychosocial model should not be a surprise to the psychological community as there have been over 200 years of documented biomedical practice that has focused on pathological aspects of disease and health disorders while the practice of health psychology was, and still is, in its infancy (Deep, 1999). It was only as recent as 1978 that the APA's Health Psychology Division 38 was formed (APA, 2006). The progressive suggestions to the biopsychosocial model discussed prior have allowed for biomedical professionals to still desire to incorporate this model into their practice as a long term goal (Waters, 2005). Additionally, the advances in

biopsychosocial perspectives and the frequency of citations on the web utilizing the terms *biopsychosocial*, *biobehavior*, and *biomedical* has significantly increased (Suls & Rothman, 2004). Engel's model has expanded from its biomedical base to become a fundamental framework for health psychologists. As of 2004 there were over 26 professional organizations with over 100,000 members in the Health and Behavior Alliance (Suls & Rothman, 2004).

The biopsychosocial model, or more generally health psychology, has evolved from its application in the medical field. This field of study is now being applied in mapping biobehavior as a predictor of illness and it is reaching out to specializations such as dentistry, adolescent psychology, and the model itself is evolving. Although experimental evidence to support the incorporation of health psychology on the recovery rate of patients can sometimes be inconsistent, a great deal of research has proven that managing stress levels, emotions, behavior, coping, and diet have a positive effect on reducing stress related disorders such as cardiac arrest, immune system health, and reduction in HIV transmission rates as examples (Baum & Posluszny, 1999). Today health psychologists desire to further research in these, and many other areas.

Health psychologists work in clinical environments, research environments, and private or public practice with the goal of promoting the biopsychosocial model in their areas of expertise (Lopez & Jones, 2006). Newer fields of research such as adolescent health psychology are producing exciting developments such as using the biopsychosocial model to prevent the onset of HIV/AIDS in young adults by assessing risk-taking behaviors (Williams,

Holmbeck, & Greenley, 2002). Because of this research health psychologists are finding links between adolescents' perceived age and how they behave. For example, those adolescents that perceive themselves as physically older than others their same age tend to participate in riskier behaviors such as abusing drugs and alcohol, distancing themselves from their parents, or taking on perceived adult roles such as focusing on work rather than focusing on school (Holmbeck & Greenley, 2002). The awareness of these patterns of behavior will help psychologists, parents, and school systems intervene before mental, social, and biological damage becomes permanent.

An additional new field of health psychology is the application of the biopsychosocial model in dentistry. Deep (1999) acknowledged that it is beneficial to expand the view of dental disease from just an etiological vision to that of a broad understanding that multiple factors influence the definition of health and wellness. Understanding underlying psychological causes for dental decay, such as why a patient does not follow the recommendations to floss or brush teeth, can help dentists to develop more comprehensive treatment plans to prevent disease (Deep, 1999).

Health Psychology in the 21st Century

There are still many opportunities to improve the integration of health psychology with biomedical practices. Because of advancements in biopsychosocial research positive discoveries have been made. Now physicians have evidence that cardiac patients who receive comprehensive treatment that includes psychological care have much higher recovery rates; unfortunately very

few patients today are being referred for this care (Sotile, 2005). In order to progress research and recovery rates, multiple disciplines will have to share ideas, communicate bilaterally, and manage best practices. Health, medicine, and psychology are such fields that are on the cusp of benefiting from these mutual contributions. With the continuous increase in the cost of healthcare and the denial of reimbursement for specific tests, health psychology interventions are becoming more appealing to patients and physicians (Smith & Suls, 2004).

Health psychology continues to evolve and expand from its native mind, body and spiritual roots. In February, 2007 the search term “health psychology” yielded over 1,130,000 Google results. There are now formalized health psychology programs and the biopsychosocial model has led to the legitimization of this field (Keefe & Blumenthal, 2004). This field of study will benefit from future studies that display empirical evidence of the effect of health psychology interventions on biomedical results. With so much work to be done and such breadth in opportunities to specialize and research, the field of health psychology has unlimited potential for future exploration.

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