

The Status of the “Biopsychosocial” Model in Health Psychology: Towards an Integrated Approach and a Critique of Cultural Conceptions

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ABSTRACT

The current status of the “Biopsychosocial” Model in health psychology is contested and arguably exists in a stage of infancy. Despite original goals, medical researchers have developed theoretical and empirical integrations across bio-psycho-social domains only to a limited extent. This review article addresses this issue by making connections across research findings in health psychology and related medical fields in order to strengthen the associations across bio-psycho-social domains. In particular, research in *sociosomatics*, *neuroplasticity* and *psychosocial genomics* are introduced and explored. The role of “culture” as conceived of within the Biopsychosocial Model is also ambiguous and somewhat problematic. Arthur Klienman’s conceptions of culture as *what is at stake* for individuals in their local social and moral worlds is adopted to offer a critique of previous perspectives of culture and question its role amidst bio-psycho-social domains. Overall, a multilevel integrative or “holistic” perspective is advanced to strengthen the Biopsychosocial Model for use within health psychology and biomedical research. In the end, some clinical implications are discussed.

Keywords: Biopsychosocial Model; Health Psychology; Culture; Sociomatics; Psychosocial Genomics

1. Introduction

Health psychology emerged as a distinct subfield of psychology when the American Psychological Association’s (APA) Task Force on Health Research was commissioned in 1976 to address concerns over increasing rates of “preventable” diseases in the United States [1]. During a fifty year span between 1920 and 1970, the prevalence of acute infectious diseases like influenza, measles, and tuberculosis declined in the North America while what have been termed “preventable” conditions have substantially increased, including cardiovascular disease, drug and alcohol abuse, and lung cancer [2]. After some success in applying psychological theory and practice to the promotion of physical health, health psychology formally became Division 38 of the APA in 1978. Since then, research in health psychology began to focus on diverse areas, including: illness treatment and prevention; the role of psychological factors in health and illness; and improving health care services and policies [3-5]. Today, Division 38 has over 6000 formal members, one of the largest in the American association, and includes several rigorous research programs, involving: associations among clinically diagnosable mental

disorders and the pathogenesis of physical ailments such as cardiovascular disease (clinical health psychology) [6,7]; effective health intervention, promotion and prevention of disease and illness in schools, work sites and “daily living” (public health psychology) [8,9]; community health justice and social action (community health psychology) [10-13]; the identification and comparison of major etiological agents of illness in a variety of cultures (cultural health psychology) [14,15]; critiques of mainstream “Western” approaches to and understandings of health and illness (critical health psychology) [16-19]; psychoneuroimmunology [20,21]; and biological models linking the social world and physical health [22-24], to name a few.

Underlying this multifarious collection of research within health psychology is the position that biological (e.g., genetic predisposition), psychological or behavioral (e.g., lifestyles, explanatory styles, health beliefs), and social factors (e.g., family relationships, socioeconomic status (SES), social support) are all implicated in the various stages of pathogenesis and health etiology. This position is termed the “Biopsychosocial Model” (BPS) and has gradually emerged in consort with related scientific developments in medicine. During the evolution of

medical science from the Renaissance to the late 19th and early 20th centuries, advances in biology, anatomy and physiology eventually crystallized into what is now referred to as a “biomedical model”. This perspective yielded a shared set of assumptions (*i.e.*, reductionism, naturalism, mind-body dualism), which relegated illness and healing primarily to a physiological framework with limited attention to social, moral or political dimensions. It is during this time in the late 1970s that psychiatrist George L. Engel at the University of Rochester, as well as other clinicians and researchers, began to enunciate the limitations of biomedicine and a need for a biopsychosocial perspective¹. In 1977 George Engel observed a “medical crisis” that he thought “derives from adherence to a model of disease no longer adequate for the scientific tasks and social responsibilities of either medicine or psychiatry” (p. 129), and that medical practitioners and researchers “should take into account the patient, the social context, the physician’s role and the health care system” (p. 132) [25]. Engel’s articulation of a “biopsychosocial” perspective was therefore an important attempt to incorporate the patient’s psychological experiences and the social or cultural context into a more comprehensive framework for understanding disease, illness and health².

Since its introduction, the BPS model has been widely embraced within medical sciences and health psychology. Presently, the American Psychiatric Association and the American Board for Psychiatry and Neurology, as well as several medical schools, psychiatry residencies, and health psychology graduate programs across North America and Europe officially endorse a biopsychosocial approach [26-27]. Furthermore, several health psychologists in particular consider the BPS model to be a guiding framework for contemporary research and practice [28-30]. In the context of chronic pain, for example, a 2004 study by Gatchel and a 2007 study by Gatchel and colleagues both demonstrate that the connections among biological changes, psychological status, and the socio-cultural context should all be considered in trying to understand an individual’s perception of pain [31,32]. A psychiatric intervention or treatment approach, Gatchel further argues, “that focuses on only one of these core sets of factors will be incomplete” (p. 797) [31]. In 2008 Leventhal and colleagues paint a similar picture for addictions, smoking and alcohol use. To understand these

complex “health risk behaviors”, these authors suggest researchers must investigate one’s cultural, peer and family environments, one’s propensity to risk taking and emotional reactivity, as well as one’s genetic and biological predispositions [33]. Underestimating any of these three domains, these authors argue, will limit a practitioner or researcher’s ability to predict the likelihood of initiation, rapidity of addiction, and the difficulty of cessation [33].

The status of the BPS model, its use and general acceptance within health psychology, however, is not free from contestation. Several authors over the years have expressed concerns regarding its limitations, specifically regarding: problems with dichotomizing between biology, psychology, and society [27]; problems with its ambiguous status as an actual “scientific model” [34-36]; problems of masking an underlying biomedical approach [37,38]; difficulties with the complexity of outlining linkages or prioritizing among its subsystems [26,39-41]; and a pervasive individualistic focus [14,18,42,43].

Despite original goals, researchers in health psychology and related medical fields have developed theoretical integrations across biopsychosocial domains only to a limited extent. Consequently, health psychology largely operates from what several authors suggest is a “psychosomatic” framework [26,39,40]. In their 2004 review of the BPS model, for example, Suls and Rothman independently read and coded all of the studies published in *Health Psychology*—a leading journal in the field—over a 12-month period (November 2001-September 2002). They observed that 94% of the studies assessed psychological variables only, with minimal attention given to larger socio-cultural factors [41]. These authors observe that “opportunities to explore the interconnections between biological and social factors appear to have been limited” and conclude that “researchers have taken the basic tenets of the biopsychosocial model seriously, but more could be done to pursue the linkages among subsystems” (p. 121) [41]. Thus, a central issue regarding the BPS model and its use within contemporary health psychology and related medical fields involves the degree to which the three domains of the model are explored in an “integrative” framework [44].

The current paper addresses this issue by outlining and making connections across research findings in health psychology in order to strengthen the associations among *bio-psycho-social* domains while at the same time arguing for a richer, more nuanced approach to “culture” within the current biopsychosocial meta-theoretical framework. Thus, it is proposed that a “holistic” perspective is required to guide future research and practice in health psychology and related medical fields, a perspective that several developmental psychopathologists and researchers refer to as a *multilevel integrative analysis* [22,45-48].

¹In 2009 Ghaemi observes that the “biopsychosocial” concept was actually coined by Roy Grinker in the 1950s. George Engel, however, is still largely responsible for its popularization in medical science and health psychology in his 1977 article [26].

²For the current purposes, *disease* is defined as “an objective biological event” involving the disruption of specific bodily structures or organ systems caused by either anatomical, pathological, or physiological changes; and *illness* is defined as a “subjective experience or self-attribution” that a disease, or psychosocial “disturbance” is present [60,61].

This guiding perspective is inherently multidisciplinary and multiparadigmatic and assumes equality within all levels of analysis (*i.e.*, genes, neurological structures, psychological traits, families, peer groups, and broader contextual influences like culture and ethnicity) thereby attempting to dismantle conceptual borders between nature and nurture, biology and psychology, or science and spirituality [47,48].

To meet these ends, this article first critically reviews studies in health psychology in an attempt to flesh-out or strengthen the relations among the domains of the BPS model and introduces the fields of and related findings in *sociosomatics*, *neuroplasticity*, and *psychosocial genomics*. Following this, a review of the concept of “culture” is presented to further strengthen the relations among bio-psycho-social domains. In the end, clinical implications are discussed.

2. Biopsychosocial Perspectives

2.1. Psychosomatics, Behavior & Health

A considerable number of empirical findings unequivocally support the notion that psychological and behavioral factors have important implications for disease, illness and health. Chronic stress, depression, social isolation, and conscientiousness are all understood by health psychologists and medical colleagues alike to impact the vulnerability to or protection from certain diseases [7, 49,50]. Clinical depression in particular is consistently correlated with the occurrence and pathogenesis of cardiovascular disease (CVD). In one recent 2009 study, for example, Salomon and colleagues examined differences in cardiovascular reactivity to and recovery from two laboratory stressors between naturalistic samples of clinically depressed (N = 25) and healthy controls (N = 25) with no self-reported history of CVD [7]. Their results indicate that depressed individuals exhibited both lower heart rate recovery and reactivity compared to controls. Salomon *et al.* conclude that “although depressed participants exhibited less reactivity and a higher resting heart rate (HR), ... they continued to exhibit elevated HR during the recovery period” (p. 163) [7]. Other researches note that common features of depression such as dysphoria or rumination, for example, have been related to perceiving stressors as more severe in addition to reduced self-confidence and optimism [51]. Thus, depression may confer risk for CVD through alterations in perceptions of demanding situations that impair recovery from environmental stress.

Another prominent and related line of research explores behaviors as the space in which biological, socio-cultural and psychological factors intersect to impact disease, illness and health. As human behaviors, includ-

ing food intake, physical activity, and cigarette smoking, are causally related to the management and vulnerability of chronic psychological and physiological disorders, and are negotiated within larger socio-political and cultural discourses, several authors suggest a focus on health behaviors necessarily engenders biospsychosocial perspectives [6,22,31,32,]. Indeed, Leventhal and associates poignantly suggest that although statistical models in community epidemiology and social psychology have highlighted ecological, economic and sociocultural effects on health and illness, many of these effects are actually produced at the level of behavior [33].

According to Baum and Poslunsky, behaviors influence health in three interrelated ways [6]. First, they may induce direct biological changes due to emotional reactions or specific behavior patterns. Second, behaviors may convey risk or protection from disease. Here, health-enhancing behaviors are understood to act as protection against disease or illness (e.g., diet or exercise, etc.), whereas health-impairing behaviors are understood to produce harmful effects (e.g., alcohol abuse, smoking, etc.). Third, patterns or cultural narratives of and for illness behavior, such as interpretations of symptoms, decisions to seek care, or surveillance methods, can exacerbate or impede the progression and manifestation of certain diseases [6]. Along these lines, some researchers (e.g., [52]) now identify specific cognitive heuristics people draw on to interpret and thus give meaning to negative somatic events and their appropriate behavioral responses. People diagnosed with major depression, for instance, consistently demonstrate lower adherence to treatment regimens [53], and lower care seeking behaviors [54]. Taken together, research into psychosomatics [7], and health behaviors [33] provide initial insights into the relations among the domains of the BPS model.

It is important to pause and reflect here on a number of criticisms that can be leveled against the previously reviewed studies. Perhaps most relevant for our purposes of seeking a deeper integration between the three domains of the BPS model is the prevalent individualistic focus of many previous studies in health psychology [18,43]. Researchers operating from “biopsychosocial” perspectives are often informed from Bronfenbrenner’s ecological models developed in 1979 in which a variety of concentric circles (family, school, work, cultural practices, political systems, etc.) simply expand around and envelope the individual at once the center of analysis, interpretation and intervention [55]. Is this a meaningful way to envision potential biopsychosocial interactions in health psychology? Is biology at the center with psychology and socio-cultural factors merely adding layers of complexity to a stable core?

As we saw, Salomon and colleagues primarily exam-

ined psychosomatic relations with little attention to the socio-cultural context that often impacts or informs interpretations of perceived environmental stressors [7]. Similarly, studies that investigate health behavior have also been limited in the extent to which meaningful or complex interactions between the individual and the social or cultural worlds are explicated [33]. Indeed, these “decontextualized” positions are common within “clinical” health psychology, as several authors observe [18,56], and thus in their succinct review of the BPS model and its use within health psychology and related medical fields, Suls and Rothman urge researchers and funding agencies to view the much needed complexity in research and practice as a virtue rather than vice [41].

With these considerations in mind, and although previous research demonstrates significant psychosomatic and behavioral associations among health, illness, and disease, future studies and the continued development of the BPS model may depend upon both a movement away from an overly individualistic focus and an embrace of sufficient levels of analytic complexity (*i.e.*, multilevel integrative analysis). It is suggested that a review of *sociosomatics*, *neuroplasticity* and *psychosocial genomics* will help to balance out what may be an individualistic bias in health psychology, provide an adequate and sophisticated understanding of the socio-cultural contours underlying health and illness, and foster a greater integration among bio-psycho-social domains.

2.2. Sociosomatics

In a special issue of *Psychosomatic Medicine*, Arthur Kleinman and colleagues draw connections between psychosomatic research and what they term “sociosomatics” in an attempt to illustrate the nature of a dialectic process between somatic, psychic and social processes, or the intercommunications among body, mind and society [57-59]. In 1986 Arthur Kleinman from Harvard Medical School introduced the term “sociosomatic” in an attempt to refocus attention in the health sciences on the often neglected social etiology of illness and disease. In challenging the familiar “psychologized” understanding of somatization as an individual and intrapsychic mediation between psychological and physiological processes, Kleinman argues that a more fruitful orientation becomes “mind-body-in-context,” thereby situating distress within the social and cultural world [60-62]. In this way, and from these perspectives, “sociosomatics” signifies: 1) the social context being integrated into mind-body interactions; 2) the impact of social context upon bodily or illness experiences (*i.e.* the social construction or social course of the illness experience); and 3) the somatic metaphor of social disharmony or the symptomatic expression of collective experiences such as distress [62]. So-

ciosomatic research is therefore primarily the study of social processes and explores how health, illness and disease are mediated at broader, often collective, socio-cultural or political levels. Thus, the moral, cultural, political, economic and medical become intertwined in a complex web of significance, possibly a reflection of George Engel’s original vision of a “new” medical model some twenty years prior [25]. It is suggested that research carried out from this so-called sociosomatic perspective can help strengthen the bio-psycho-social implications of health, illness and disease³.

In an interesting sociosomatic case study of a Puerto Rican woman suffering from depression and domestic traumas, Jenkins and Cofresi present an interrelated set of themes extracted from the patient’s narrative (*i.e.*, trust (*confianza*), malevolence (*maldad*), nerves (*nervios*), to suffer (*sufrir*), to unburden oneself emotionally (*desahogarse*)) that reveal connections between somatic and social processes [57]. These authors suggest that narrative themes constitute tools for the employment of the woman’s story that became a “symbolic bridge” [60,61] between disrupted social relationships and somatic presentation. In other words, Jenkins and Cofresi suggest that depressive symptoms, such as ruminations about suffering, irritable mood, or suicidal ideation, become understood as “social conditions of distress” or “global expressions of suffering” rather than an isolated or idiosyncratic set of clinical expressions (p. 446) [57]. In a similar manner, Kirmayer and Young identify the means by which somatic symptoms can metaphorically reflect expressions of socio-cultural distress or moral wrongs [58]. These authors review epidemiological and anthropological evidence from a variety of cultural perspectives and suggest that, depending on circumstances, somatization can be conceptualized from within multiple interpretive frameworks, including: 1) an index of disease or disorder; 2) a symbolic expression of intrapsychic conflict; 3) an idiomatic expression of distress; 4) an act of positioning within a local social world; or 5) a form of social commentary or protest. Therefore, Kirmayer and Young highlight the fact that a “psychologized” approach to somatization reflects only one “Western” cultural orientation and that theories of somatization must be expanded to recognize more often the social meanings of bodily distress [58].

Overall, sociosomatic research that outlines how bod-

³Culture, from these perspectives, tends to signify a “tacit” way of *being-in-the-world* involving a shared set of symbols and metaphors used both in the context of an individual’s “local social world” as well as broader socio-political discourses [61]. The term “socio-cultural” is used heuristically throughout this paper in an attempt to reflect both the local and global aspects of cultural systems. Although difficult to draw distinctions, “socio-political” is also used heuristically to reflect “societal” issues such as poverty, or social economic status. In later sections, issues of “culture” are discussed in more detail.

ily dynamics are often shaped through complex interactions among subjective experiences, cultural meanings, and situated contexts, not only help to integrate-at conceptual and practical levels-the bio-psycho-social domains, but also help to overcome individualistic “psychosomatic” biases so often associated with health psychology in particular or “mainstream” psychology more generally [18,60]. As interesting and relevant as sociosomatic studies are, however, limitations remain in the extent to which they fail to adequately explain, or interpret, how socio-cultural variables “get under the skin” in order to influence the physiological pathways or genetic processes leading to disease and mortality [23,63]. Thus, although sociosomatic research is relevant to balance what Suls and Rothman observed in 2004 as a focus on “psychosomatics” in clinical health psychology [41], it is suggested that *psychosocial genomics* and *neuroplasticity* can take us one step further in our desired integration across bio-psycho-social domains insofar as socio-cultural experiences are implicated not only within overt somatic expressions, but within complex physiological pathways and genetic processes as well.

2.3. Neuroplasticity & Psychosocial Genomics

Over the last decade, rapid advances in molecular biology and genetics gave way to the complete mapping of the human genome in 2001 [64]. Alongside these developments were technological and spectral imaging advances, such as functional magnetic resonance imaging (fMRI), allowing us to examine complex neurological processes. Together these scientific movements spawned two relatively recent fields of empirical investigations, neuroplasticity and psychosocial genomics, offering important evidence regarding the interrelated and interdependent nature of biological, psychological and socio-cultural processes.

Research on human neuroplasticity demonstrates that brain neurons are considerably more dynamic than was once thought and can develop novel synaptic connections in response to experience and learning across the entire life span into and including old age [47]. Prior to 1998, it was commonly held that the neurophysiology of the human adult brain was fixed and immutable. Acceptance of the “hardwired brain” started to collapse, however, after a thought provoking paper was published in 1998 by Eriksson and colleagues describing the growth of new neural tissue or “neurogenesis” of the adult hippocampus [65]. Since then, neuroplasticity has been observed and documented in a variety of conditions and experiences [66-69]. McGaugh, for example observes how hippocampal changes can appear within adult brains only hours after challenging learning experiences, hypothesized to develop analogously to the ways that strenuous physical labour can develop muscle tissue [70]. Similarly,

other researchers suggest that processes of reconstructing memories of past trauma during psychotherapy or narrative interventions are supported by actual neurological reorganization and neurogenesis [71]. Because neuroplasticity is thought to “play out” via experience-dependent gene interactions, *psychosocial genomics* thus becomes an excellent complement to this neuroplasticity research.

Psychosocial genomics observes and describes the modulating effects of experience on gene expression—essentially support for and a reformulation of the well-known gene-environment interactions [45,72]. Protein synthesis within the DNA code of the human genome is subject to modifications beyond changes within the basic genetic sequence of amino acids themselves and therefore do not occur in a one-to-one fashion [72,73]. Instead, protein synthesis is highly vulnerable to social-environmental signals (*i.e.*, experience-dependent gene expression), which not only turn specific genes “on” or “off”, leading to alterations in protein synthesis [45,72,74], but also modulate, steer or modify the manner in which basic organic molecules are organized into anatomy and physiology [75]. Rossi, for example, suggests that our genes provide a framework for development, the “warp” threads of a loom to use a metaphor; whereas, socio-cultural experiences and environmental influences can alter gene expression and thus form the “woof” threads. *Psychosocial genomics* is the term used in 2002 by Rossi to represent this complex “weaving” interaction, which can potentially help integrate biopsychosocial domains as presented and used within health psychology and related medical fields [76].

Social support has long been thought of as an illness protective or health-promoting factor among health psychologists and medical practitioners, and can be explored here to explicate these complex biopsychosocial interactions. Across a large number of studies, individuals with more satisfying social relationships or confidants (*i.e.*, someone they can talk to about problems), recover more quickly from already-diagnosed illness and reduce their risk of mortality from specific diseases when compared with those with less social support [6,20,23,24,33,77,78]. Previous research also suggests that social support may buffer or protect against the effects of negative environmental stressors on immune processes [79], and may also foster restorative physiological process, such as more efficient sleep [80]. Questions remain however as to how social support can “get under the skin” so to speak. From a psychosocial genomic perspective, experienced social support may be seen to increase physiologic control of potential inflammation by the hypothalamic-pituitary-adrenal (HPA) axis creating altered gene expression profiles in immune cells [75,76,81]. In other words, the biological underpinnings of a specific disease (*e.g.*, CVD)

and various socio-cultural experiences (*i.e.*, social support), from this perspective, are etiologically equivalent.

The practical implications of this psychosocial genomic “equivalency” suggests that health interventions or “healing” at one level of organization (*i.e.*, biology, psychology, family, community, etc.) can create a ripple effect that impacts all other levels—that is, talk therapy, for example, may have as much of a psychological impact on an individual as neurological, genetic or socio-cultural [82]. Therefore, recent calls for heightened “social action” or “social justice” initiatives in health psychology [10-13] should be understood to impact broader socio-political domains known to effect health status (*i.e.*, poverty, social inequalities, social economic status, etc.), as much as psychological, genetic and biological domains. This argument is also clearly outlined by Lawrence Kirmayer at the University of McGill suggesting that “in practice, every therapeutic action or communication—whether drug, word, gesture, ritual or relationship—has effects simultaneously on all these levels” (p. 42), and that “there is little evidence to support the claims of particular schools of psychotherapy that a single mechanism like catharsis, insight, reinforcement or cognitive restructuring alone accounts for the efficacy of its practice” (p. 42) [15]. Moreover, previous concerns voiced by researchers over how to prioritize across bio-psycho-social domains [26,40] are, from this *multi-level integrative* perspective, unwarranted insofar as they presuppose dichotomies that, in effect, may not be present. In other words, socio-cultural experience must be taken as analytically “equivalent” to biology and psychology, and this is the deeper integration sought between domains. Thus progress in health psychology and the continual maturing of the BPS model may come from looking at how any and all of these levels are involved in even the simplest of interventions [15,76,82].

Taken together, this section briefly reviewed three areas of research that potentially contribute to a deeper integration among BPS domains: psychosomatics and behavior; sociosomatics; and neuroplasticity and psychosocial genomics. Findings from these fields validate the importance of BPS perspectives in health psychology insofar as they outline the relations between mind, body and society as well as elucidate the mechanisms by which socio-cultural forces can “get under the skin” [23,82]. Although the review of these areas may be relevant to our goal of creating a deeper integration across bio-psycho-social domains, the question of “culture” in the BPS model still remains. What is the role of “culture” in relation to biological, psychological and social aspects of health research? Is it subsumed within the “social” domain or something entirely separate? What is more, how do health researchers and practitioners conceptualize “culture” and how do these perspectives impact the

nature of their research? The following section explores these questions to further strengthen the sought after “holistic” perspective among bio-psycho-social domains.

3. “Culture” in the Biopsychosocial Model

The concept of culture has evolved over the years, changing from context to context and situation to situation, carrying with it a certain “vagueness” and contentious nature [83,84]. Conceptions of culture in positivist psychological discourse often focus on broad homogeneous factors that are likened to a “bounded group” which can then be easily compared to another group on a particular characteristic of interest (*i.e.*, American, Chinese, and Russian etc.) [85]. Along these lines, positivist health researchers—those seeking to explain aspects of and make predictions pertaining to human reality through the identification of its universal features—tend to draw on conceptions of culture from early 19th century theorists such as E. B. Tylor who referred to culture as a complex whole that includes knowledge, belief, morals, law, and other habits and capabilities acquired by people as members of a particular social group [86]. In addition, contemporary cultural conceptions are also influenced by researchers like Kroeber and Kluckhohn who, in 1952, examined existing definitions of culture in their time and offered a synthesized understanding wherein, “culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups...” (p. 181) [87]. More recently, George Barnett and Meihua Lee add to the growing cultural discourse by synthesizing Geertz, Durkheim, and Goodenough to define culture as:

“a property of a group. It is a group’s shared collective meaning system through which the group’s collective values, attitudes, beliefs, customs and thoughts are understood. It is an emergent property of the member’s social interaction and a determinant of how group members communicate” (p. 277) [88].

Taken together, these conceptions of culture—focusing solely on the properties of distinct groups—encourage researchers to exaggerate distinctions while discounting similarities.

Several cultural theorists, such as Keesing, argue that previous positivist conceptions of culture—like those mentioned above that focus on global factors of group membership only—tend to espouse a kind of “radical alterity,” exaggerating exotic elements of different cultural systems while overlooking elements in common [89]. In 1990 Keesing argued for a move away from definitive definitions of culture so to avoid issues of reification, essentialism, or to mistakenly presuppose the idea that cultures are “hermetically sealed” or bounded to a particular time or location. In this regard, medical re-

searchers such as Arthur Kleinman advise that culture be conceptualized as “what is at stake” for particular individuals in particular situations, with a focus on “collective (both local and societal) and individual (both public and intimate) levels of analysis” (p. 98) [61]. From this perspective, culture moves from the exotic rainforests of the South American Amazon to the everyday lives of North American Wal-Mart shoppers, suggesting that whatever *is at stake* for individuals within their particular local social worlds involves, in some way or another, cultural systems [83]. In other words, for “culture” to be meaningfully conceptualized within empirical research it arguably must be brought to the level of individual local social and moral experience thereby maximizing the individuated meanings and interpretations of cultural symbols while minimizing reified group distinctions.

In contemporary health research carried out from “biopsychosocial” perspectives, a central limitation involves cultural assumptions of uniformity or homogeneity within sample groups. It is not uncommon to see religious denomination (Evangelical Protestant, Roman Catholic, Hindu, or Muslim) or “cultural orientation” (North American, African, or Asian) taken as a proxy for or representation of an isolated group that can be then meaningfully compared to a different group. In their 2002 examination of the relation between spiritual striving and psychological health, for example, Piedmont and Leach administered the Spiritual Transcendence Scale (STS) in a “cross-cultural setting” involving over 350 individuals from Christian, Muslim and Hindu religious backgrounds who were English speaking and living within the Hyderabad region of India [90]. Their goal was to validate spirituality as a universal aspect of human experience related to adaptive psychological functioning by comparing findings from the three religious groups. These authors concluded that the STS was an appropriate measure that could be used to generate knowledge of spiritual transcendence in cross-cultural and multi-religious settings and that psychological health and spiritual striving were positively correlated. Similarly, a more recent study conducted in 2006 by the World Health Organization Quality of Life research group, attempted to examine the relation among spirituality, religion and personal beliefs (SRPB) and measures of Quality of Life (QoL) in cross-cultural contexts [91]. This study involved over 5000 participants from 18 different countries that were grouped and compared by both religious affiliation and ethnic orientation. The overall conclusion of the study showed that measures of QoL demonstrated significant positive correlations with spiritual, religious and personal beliefs and that the SRPB instrument was useful to investigate the differences in QoL among different cultural groups [91]. It is imperative to question “cross-cultural” studies of this kind regarding why cer-

tain individuals are thought of as being members of particular “cultural” groups, how this is determined, and whether or not these distinctions are meaningful. Such critical questions not only aid global health and medical research in an ever expanding multi-cultural or globalized context, but also, and perhaps more importantly, augment the sought after associations across bio-psychosocial domains.

In both the previously cited studies, justification was not given for how or why Christian, Muslim, or Hindus, for example, were considered to be meaningfully distinct groups. In many so-called “cross-cultural” studies informed from positivist assumptions, self-ascribed religious affiliation represents a sufficient marker for cultural difference. Substantial evidence against this assumed cultural or religious uniformity has been formulated, however. For example, Douglas Hollan, during his fieldwork amongst Toraja men in Indonesia, concluded that no two people internalize the symbolic systems available within a particular cultural landscape in the same way, and that “cultural processes must be highly dynamic and ever changing because the minds and self-states of the people who embody and enact them are” (p. 545) [92]. These data suggest that a group of individuals who self-ascribe to the same religious or cultural system (Roman Catholic, Seventh Day Adventists, Hindu, Buddhist, Muslim, or Bahá’í) will have important differences as to the ways in which the symbolic forms found within their particular religious or cultural universe are taken in, internalized and lived. The knowledge of or devotion to certain symbolic dimensions, such as values, beliefs or levels of practice in a religious or cultural system, is likely to vary significantly between individuals. Therefore, the knowledge of a particular cultural trait (as it may be examined on a given quantitative measure for health research) must be seen as different from that trait having a personal, internalized meaning. In other words, individuals may “share” the knowledge of a particular cultural trait, yet it is likely that the trait is “lived” in different ways by different individuals [83]. This perspective has serious implications forcing medical researchers to question the assumptions of homogeneity within current investigations across bio-psychosocial domains, not only within “cross-cultural” contexts, but also within studies involving between-group comparisons.

A second issue regarding assumptions of homogeneity within current cross-cultural research involves De Munck’s illustration of cultural overlap and issues of national identity, race and ethnicity [93]. De Munck argued that individuals from different “cultural areas”, such as India and Canada, may simultaneously share similar and different local social experiences. For example, if we imagine three individuals, a female organic farmer and vegetarian in Saskatchewan, Canada, a suc-

cessful multimillionaire male lawyer in down town Toronto, and a female multimillionaire from Calcutta, we can see experiential similarities and differences across all three. Positivist or modernist theories of culture, focusing primarily on group affiliation, would argue that the female organic farmer and Ontario lawyer are “culturally” more similar than either is to the millionaire from Calcutta. But clearly there are experiences that the Canadian organic farmer and the millionaire from Calcutta share in common as women and vegetarians, while at the same time the lawyer from Toronto and millionaire from Calcutta also share common experiences as urban dwelling multimillionaires [93]. This suggests that when culture is conceptualized only in terms of the broader collective societal levels, discrete cultural areas (Canada or India), ethnic identities (Indian, Chinese, or Irish) or particular races (black, or white), important experiential distinctions are masked regarding *what is at stake* for particular individuals in particular contexts. Moreover, when national boundary or ethnic identity is taken as a proxy for cultural orientation, this serves to physically and temporally bound dynamic cultural systems. Individuals who self-ascribe to similar cultural systems or philosophies yet differ greatly with respect to local experiences cannot be meaningfully placed together in a single group and compared against another group. Therefore, if group affiliation is to be determined for research purposes, this may best occur by an examination of the individual’s local social and moral world or context dependent experiences, rather than simply looking at the broader cultural orientation or self-ascribed cultural or religious affiliation. In this way, what Schwandt calls interpretivist, hermeneutics, or social constructionist epistemological positions [94], positions that seek to pull apart and understand the local, moral and experiential realities of individuals, and the related methodological approaches such as qualitative phenomenology, narrative inquiry, ethnography, or case study analysis, may become more appropriate as researchers in health psychology and related medical fields continue to increase the sophistication with which group membership is determined in cross-cultural settings [95-97].

Overall, this brief review of the role of “culture” in health psychology and the BPS model would suggest a more nuanced position as opposed to simply equating cultural orientation with the social domain. Culture, as viewed from the position of *what is at stake* in one’s local social and moral world, impacts not only the social embeddedness of individuals (*i.e.*, family relationships, socioeconomic status (SES), social support, political structures, laws, etc.), but also the psychological or behavioral (*i.e.*, lifestyles, explanatory styles, health beliefs) and the biological (*i.e.*, genetic predispositions) as well [61]. Thus, culture informs, is a part of, and influences

all aspects of the BPS model. Neglecting to pay adequate attention to the important, if not central, role of culture in health psychology and related medical fields can lead to several concerns as Kazarian and Evans observe: the neglect of cultural and linguistic demographics in health care delivery; the lack of consideration of cultural diversity in health service planning, implementation, and evaluation; the creation of discriminatory health service practices and disparities in health care access, utilization and outcome; and the marginalization of a diverse array of indigenous health structures, belief systems, and practices [14]. Therefore the role of culture must be seriously considered when attempting to integrate the three aspects of the BPS model into a more holistic perspective.

4. Conclusions: A “Holistic” Approach

At its inception, there was minimal empirical evidence supporting the importance of a biopsychosocial approach to health promotion [25]. After several decades of research in health psychology and related medical fields, however, the support for a biopsychosocial perspective is growing. Limitations in previous conceptions of the BPS model are arguably being overcome as research into *sociosomatics*, *neuroplasticity*, and *psychosocial genomics* are beginning to explicate the complex ways in which social factors impact health outcomes and somatic symptoms as well as the ways in which socio-cultural forces “get under the skin.” In following a *multilevel integrative analysis* [45-48]—which takes into account multiple levels of orientation—it is suggested that health research and successful health promotion necessarily involves the dynamic interaction of biological, psychological, and social domains, while at the same time understanding the role of culture that informs and saturates all three.

In terms of clinical implications, this review suggests that future health intervention strategies and research programs should focus on the “holistic” interaction between these domains rather than addressing them as separate aspects of the individual or environment. The continual maturing of the BPS model may therefore depend upon the extent to which any and all of these levels (genetics, biology, psychology, sociality, ecology, culture, and spirituality) are involved and overlap within even the simplest of interventions [14]. As Sulmasy clearly outlined:

“A human person is a being in relationship—biologically, psychologically, socially, and transcendentally. Illness disrupts all of the dimensions of a relationship that constitute the patient as a human person, and therefore only a “holistic” or biopsychosocial-spiritual model can provide a foundation for treating patients holistically” (p. 32) [98].

Future research could examine the effectiveness of these claims in the context of clinical practice, explore the concept of health from these perspectives, and finally question how these perspectives may influence current trends in health promotion and intervention.

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