

Review Article

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A revitalized biopsychosocial model: core theory, research paradigms, and clinical implications

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Abstract

The biopsychosocial model (BPSM) was proposed by George Engel in 1977 as an improvement to the biomedical model (BMM), to take account of psychological and social as well as biological factors relevant to health and disease. Since then the BPSM has had a mixed reputation, as the overarching framework for psychiatry, perhaps for medicine generally, while also being criticized for being theoretically and empirically vacuous. Over the past few decades, substantial evidence has accumulated supporting the BPSM but its theory remains less clear. The first part of this paper reviews recent well-known, general theories in the relevant sciences that can provide a theoretical framework of the model, constituting a revitalized BPSM capable of theorizing causal interactions within and between biological, psychological, and social domains. Fundamental concepts in this new framework include causation as regulation and dysfunction as dysregulation. Associated research paradigms are outlined in Part 2. Research in psychological therapies and social epidemiology are major examples of programs that have produced results anomalous for the BMM and consistent with the BPSM. Theorized models of causal mechanisms enrich empirical data and two biopsychosocial examples are models of chronic stress and pain perception. Clinical implications are reviewed in Part 3. The BPSM accommodates psychological and social as well as biological treatment effects evident in the clinical trials literature. Personal, interpersonal, and institutional aspects of clinical care are out of the scope of the BMM, assigned to the art of healthcare rather than the science, but can be accommodated and theorized in the BPSM.

Introduction: the problem area and a proposal

The biopsychosocial model (BPSM) was proposed by George Engel in 1977 as an improvement to the biomedical model (BMM), necessary to account for psychological and social factors in health and disease as well as biological (Engel, 1977). This proposal remains critical in science and in service planning (Wade & Halligan, 2017). However, the BPSM has a mixed reputation: it has been regarded as the overarching, dominant framework for psychiatry, perhaps for medicine generally, while on the other hand, and often at the same time, it has been roundly criticized for being scientifically, theoretically vacuous (Ghaemi, 2009; McMamus, 2005). This is the problem area to be addressed in this paper: what is the science of the BPSM?

At the level of the empirical data, there is reason to think now that this supports the broad BPSM. Over the past few decades, substantial evidence has accumulated that psychosocial as well as biological factors are implicated in the etiology and course of a wide range of health conditions, supporting the BPSM, reviewed, for example, in Novack et al. (2007), Bolton and Gillett (2019), and in a recent edited volume on biopsychosocial psychiatry (Savelle, Roache, Davies, & Loebel, 2020). There remains, however, the problem of theory, identified by authoritative critics as cited above: the BPSM seems to have no clear scientific theoretical content. Put another way, the criticisms of the BPSM are typically not reviews of the evidence base, but are doubts about whether the ‘model’ really has anything to say – any content.

Drawing on previous work (Bolton & Gillett, 2019), I will present a case that Engel’s main idea – that a BPSM was required to replace the BMM – was visionary but programmatic. It was visionary in anticipating radical changes in the ways that health and disease were becoming theorized and researched, but programmatic because the radical changes were in their early stages, still in progress and not yet widely implemented. However, I suggest, the position has changed by now, and theories that can underpin a broader BPSM are well-known and can be drawn upon to revitalize the model.

To explain the background and the proposal further, Engel’s 1977 paper implicates two foundational underpinnings of the BMM, the model for biomedicine as conceived at that time: one is that biology, as physiology, is reducible to physics and chemistry, and the other is the assumption of mind/body dualism (Engel, 1977, p. 379). Dualism notoriously offers no scientific account of how immaterial mental processes can causally influence the material

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Dorothy S. Becvar



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International Abstracts of Human Resources ,2006

Cooperation Networks and Economic Development

Andrés Cárdenas O'Farrill,2021-02-11 For most Western audiences Cuba is a touristic paradise stuck in time and virtually detached from world technology networks by the US embargo anything but a hub of industrial innovation and high value added biotechnology However a closer look reveals more subtle but equally powerful stories that challenge the homogenizing assumptions of conventional economics and open up scope for more sophisticated reflections on Cuban economy and industry From this kind of enquiry emerges the case of the internationally respected Cuban biotech industry as the most successful case of science and technology policy in the country s economic history The book takes an interdisciplinary approach exploring issues such as interdependency purpose and history as natural constituencies of the innovation process It also examines the dynamic and crucial role played by the state in the formation of innovative business enterprises This book will be of interest to academic researchers in the fields of innovation and economic development British Humanities Index

,2006 Report of the Annual Meeting of the South African Association for the Advancement of Science ,2006 *Education in South America* Simon Schwartzman,2015-07-02 Education in South America is a critical reference guide to development of education in Argentina Bolivia Brazil Chile Colombia Ecuador Paraguay Peru Uruguay and Venezuela The chapters written by local experts provide an overview of the education system in each country focusing particularly on policies and implementation of reforms Key themes include quality and access multicultural education and the management of education systems Including a comparative introduction to the issues facing education in the region as a whole and guides to available online datasets this book is an essential reference for researchers scholars international agencies and policy makers The Comprehensive Guide to Science and Faith William A. Dembski,Casey Luskin,Joseph M. Holden,2021-10-05 Science and Faith Can and Do Support Each Other Science and Christianity are often presented as opposites when in fact the order of the universe and the complexity of life powerfully testify to intelligent design With this comprehensive resource that includes the latest research you ll witness how the findings of scientists provide compelling reasons to acknowledge the mind and presence of a creator Featuring more than 45 entries by top caliber experts you ll better understand how scientific concepts like intelligent design are supported by evidence the scientific findings that support the history and accounts found in the Bible the biases that lead to scientific information being presented as a challenge rather than a complement to Christianity Whether you re looking for answers to your own questions or seeking to explain the case for intelligent design to others The Comprehensive Guide to Science and Faith is an invaluable apologetic tool that will help you explore and analyze the relevant facts research and theories in light of biblical truth **Sudden arrhythmic death: from basic science to clinical**

practice Gareth D. Matthews,2014-10-02 With upwards of 4 5 million deaths worldwide each year and more than one tenth of these occurring in those with no previously documented heart disease sudden arrhythmic death SAD is both a major public

health burden and a highly emotive issue for society at large Recent years have witnessed a marked expansion in our knowledge of the physiology underlying SAD both in the context of hereditary and acquired cardiac disorders Thanks largely to work in genetically modified animals the growth in our understanding of mechanisms underlying arrhythmia in the hereditary channelopathies has been particularly marked Our growing knowledge of the fundamental mechanisms underlying SAD has so far failed to spur substantial developments in clinical practice Despite a large body of work in both humans and animals it remains impossible to confidently identify those at high risk of SAD making pre-emptive therapy a challenge What is more with the thankful exception of the implantable cardioverter defibrillators and pharmacological agents in very specific situations there has been depressingly little progress in finding new and effective therapies This Research Topic aims to go some way towards bridging the gap between advances in basic science and the development and delivery of new therapies It brings together original research contributions and review articles from key opinion leaders in the field focusing on the direct clinical implications of the basic science research now and in the future

Handbook of Family Resilience Dorothy S. Becvar, 2012-08-24 Resilience is a topic that is currently receiving increased attention In general resilience refers to the capacity of those who even under the most stressful circumstances are able to cope to rebound and to go on and thrive Resilient families are able to regain their balance following crises that arise as a function of either nature or nurture and to continue to encourage and support their members as they deal with the necessary requirements for accommodation adaptation and ultimately healthy survival *Handbook of Family Resilience* provides a broad body of knowledge regarding the traits and patterns found to characterize resilient individuals and well functioning families including those with diverse structures various ethnic backgrounds and a variety of non traditional forms This Handbook brings together a variety of perspectives aimed at understanding and helping to facilitate resilience in families relative to a full range of challenges

Technology-Based Assessments for 21st Century Skills Gregory Schraw, Michael C. Mayrath, Jody Clarke-Midura, Daniel H. Robinson, 2012-03-01 Creative problem solving collaboration and technology fluency are core skills requisite of any nation's workforce that strives to be competitive in the 21st Century Teaching these types of skills is an economic imperative and assessment is a fundamental component of any pedagogical program Yet measurement of these skills is complex due to the interacting factors associated with higher order thinking and multifaceted communication Advances in assessment theory educational psychology and technology create an opportunity to innovate new methods of measuring students' 21st Century Skills with validity reliability and scalability In this book leading scholars from multiple disciplines present their latest research on how to best measure complex knowledge skills and abilities using technology based assessments All authors discuss theoretical and practical implications from their research and outline their visions for the future of technology based assessments

Nuclear Science Abstracts, 1973-07

God and the History of the Universe Jarvis Streeter, 2016-03-22 The popular belief that a scientific understanding of reality is incompatible with a

Christian one is simply wrong Some Christian understandings of reality do conflict with some scientific understandings But a thoroughly rational Christian understanding of the origin and history of the universe will be informed by the best scientific theories and the facts founded on them This book weaves a narrative of the origin and history of the universe from the perspective of contemporary science with a Christian understanding of God and of God's role in the origin and history of the universe At the center of this integrated narrative is the view that God who is pure unbounded Love is Creator the zest for life in the universe comes from God and God is the source of Truth Beauty and Goodness in the universe God is amazed and delighted at what God and the world has created God is saddened by ways creatures have fallen short of pure unbounded Love Truth Beauty and Goodness and God's pure unbounded Love keeps on trying to persuade all creatures toward Truth Beauty and Goodness

Case-Based Reasoning Research and Development Luc Lamontagne, Enric Plaza, 2014-09-22 This book constitutes the refereed proceedings of the 21st International Conference on Case Based Reasoning Research and Development ICCBR 2014 held in Cork Ireland in September 2014 The 35 revised full papers presented were carefully reviewed and selected from 49 submissions The presentations cover a wide range of CBR topics of interest both to researchers and practitioners including case retrieval and adaptation similarity assessment case base maintenance knowledge management recommender systems multiagent systems textual CBR and applications to healthcare and computer games

A Systems Approach to Modeling Community Development Projects Bernard Amadei, 2015-09-14 This book makes the case for a systems approach to small scale community development projects It specifically looks at the application of one branch of systems science called system dynamics to develop conceptual models of small scale communities and address specific issues they might be facing at different scales A systems approach recognizes that by definition communities are complex adaptive systems consisting of multiple subsystems and parts e g individuals institutions and infrastructure that are interconnected driven by some purpose follow certain rules and interact with each other and with their surrounding environment In order to address community issues and problems complexity and uncertainty must be embraced and dealt with Inside the author emphasizes and shows how to include a system and complexity aware approach in the different phases of small scale community project management Adopting this approach comes with unique challenges such as dealing with ill defined problems considering uncertainty recognizing that no unique and best solutions to complex problems exist and accepting satisficing solutions The text demonstrates the need for community development practitioners to integrate in all stages of their projects participation systems thinking continuous reflection in action and a combination of critical and creative tools

The British National Bibliography Arthur James Wells, 2009 *Special Papers*, 1934 *Quantum International Relations* James Der Derian, Alexander Wendt, 2022 The contributors to this volume are motivated by a common apprehension and a common hope The apprehension was first voiced by Einstein who lamented the inability of humanity at the individual and social level to keep up with the increased speed of technological change brought about by the quantum

revolution As quantum science and technology fast forward into the 21st century the social sciences remain stuck in classical 19th century ways of thinking Can such a mechanistic model of the mind and society possibly help us manage the fully realized technological potential of the quantum That s where the hope appears that perhaps quantum is not just a physical science but a human science too In Quantum International Relations James Der Derian and Alexander Wendt gather rising scholars and leading experts to make the case for quantum approaches to world politics As a fundamental theory of reality and enabler of new technologies quantum now touches everything with the potential to revolutionize how we conduct diplomacy wage war and make wealth Contributors present the core principles of quantum mechanics entanglement uncertainty superposition and the wave function as significant catalysts and superior heuristics for an accelerating quantum future Facing a reality which no longer corresponds to an outdated Newtonian worldview of states as billiard balls individuals as rational actors or power as objective interest Der Derian and Wendt issue an urgent call for a new human science of quantum International Relations At the centenary of the first quantum thought experiment in the 1920s this book offers a diversity of explorations speculations and approaches for understanding geopolitics in the 21st century **The Innate Mind** Peter Carruthers, Stephen Laurence, Stephen Stich, 2007-01-04 This is the second volume of a projected three volume set on the subject of innateness The volume is highly interdisciplinary and addresses such question as To what extent are mature cognitive capacities a reflection of particular cultures and to what extent are they a product of innate elements How do innate elements interact with culture to achieve mature cognitive capacities How do minds generate and shape cultures How are cultures processed by minds The volume will be of great importance to anyone interested in the interplay between culture and the innate mind **Gender and Finance** Ylva Baeckström, 2022-02-25 This book examines the world of finance and the role of gender within it It looks at the financial services industry arguably the most powerful and remunerative sector that exists and shows how it was created by men for men The author explains how historically women were excluded how minimal progress has been made and outlines how the sector still needs to change to function effectively in a modern equal opportunities world Addressing gender inequality in financial services is of utmost urgency and importance because of the extent to which it affects women in all stages of life Women s exclusion in financial services is also mirrored by how men have been excluded from parenting through a similar set of societal expectations government legislation and corporate policies The author maintains that to succeed we need to address both financial services and parenting To do so we need regulatory support Because of its power and dominance the financial services industry has the opportunity to lead this change and to champion gender equal practices These practices are economically beneficial to all participants not only female employees and consumers We all need these benefits as we rebuild our economies following the COVID 19 pandemic The book makes an important contribution to the critical and increasing awareness of gender concerns It presents insights drawn from original research and data about gender biases The book is an essential secondary text for a range of university

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1. Understanding the eBook Paper 2 Core Theory May June 2006 Bio
 - The Rise of Digital Reading Paper 2 Core Theory May June 2006 Bio
 - Advantages of eBooks Over Traditional Books
2. Identifying Paper 2 Core Theory May June 2006 Bio
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Paper 2 Core Theory May June 2006 Bio
 - User-Friendly Interface
4. Exploring eBook Recommendations from Paper 2 Core Theory May June 2006 Bio
 - Personalized Recommendations
 - Paper 2 Core Theory May June 2006 Bio User Reviews and Ratings
 - Paper 2 Core Theory May June 2006 Bio and Bestseller Lists
5. Accessing Paper 2 Core Theory May June 2006 Bio Free and Paid eBooks
 - Paper 2 Core Theory May June 2006 Bio Public Domain eBooks
 - Paper 2 Core Theory May June 2006 Bio eBook Subscription Services
 - Paper 2 Core Theory May June 2006 Bio Budget-Friendly Options
6. Navigating Paper 2 Core Theory May June 2006 Bio eBook Formats

- ePub, PDF, MOBI, and More
 - Paper 2 Core Theory May June 2006 Bio Compatibility with Devices
 - Paper 2 Core Theory May June 2006 Bio Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Paper 2 Core Theory May June 2006 Bio
 - Highlighting and Note-Taking Paper 2 Core Theory May June 2006 Bio
 - Interactive Elements Paper 2 Core Theory May June 2006 Bio
 8. Staying Engaged with Paper 2 Core Theory May June 2006 Bio
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Paper 2 Core Theory May June 2006 Bio
 9. Balancing eBooks and Physical Books Paper 2 Core Theory May June 2006 Bio
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Paper 2 Core Theory May June 2006 Bio
 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
 11. Cultivating a Reading Routine Paper 2 Core Theory May June 2006 Bio
 - Setting Reading Goals Paper 2 Core Theory May June 2006 Bio
 - Carving Out Dedicated Reading Time
 12. Sourcing Reliable Information of Paper 2 Core Theory May June 2006 Bio
 - Fact-Checking eBook Content of Paper 2 Core Theory May June 2006 Bio
 - Distinguishing Credible Sources
 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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