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Keith E. Whitfield (ed.). *Focus on Biobehavioral Perspectives on Health in Late Life (Annual Review of Gerontology and Geriatrics, vol. 30)*. New York, NY: Springer Publishing Company, 2010

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Over the past decade, we have not only witnessed an expansion of research dedicated to the aging population, but have also observed a shift from a unidimensional to a multidimensional approach to understanding health predictors and outcomes in older adults. Specifically, to understand variance in and contributors to both healthy and pathological aging, we must incorporate an interdisciplinary model that addresses biological, social, and behavioral factors as well as their interdependent associations with health in late life. *Focus on Biobehavioral Perspectives on Health in Late Life* presents a compendium of research aimed, from a biobehavioral standpoint, at understanding the etiology, precipitating factors, and course of health status in older adults.

The goal of presenting biobehavioral research is arduous. Whitfield, of Duke University, has attempted to apply Anderson's (1998) five levels of analysis within the scope of biobehavioral health research: (a) social/environment, (b) behavioral/psychological, (c) organ system, (d) cellular, and (e) molecular. Although Whitfield accomplished this goal, the more ambitious goal of traversing these levels (i.e., interactions across the five levels) was not necessarily achieved. Nonetheless, this book provides a respectful summary of the biobehavioral work published up until 2009.

Focus on Biobehavioral Perspectives is clearly written and divided into three sections: Introduction (three chapters), Cells to Homeostatic Systems (five chapters), and Person to Society (six chapters). Appropriately, Whitfield begins by defining "biobehavioral" and outlining the importance of an interdisciplinary perspective in health research. Sarah Szanton and colleagues continue with a

biobehavioral, "society-to-cell model" of resilience in older adults, which emphasizes that an individual's potential for health resilience in late life is determined by changes at multiple levels, including the societal, community, individual, physiological, and cellular levels. The potential for resilience in late life is determined by earlier life experiences, which emphasizes the significance of researchers' taking a biobehavioral lifespan perspective. Szanton and colleagues' discussion prepares the reader for subsequent chapters that focus on correlates of health in late life at each of the aforementioned levels. Finally, Whitfield and colleagues end the Introduction by discussing methodological considerations for complex interdisciplinary systems. Of notable importance is their discussion on socioeconomic status and ethnic diversity, two significant factors that are highly interrelated yet commonly ignored or given low priority in health research.

In the book's second section, Cells to Homeostatic Systems, Susan Motch and Roger McCarter (Pennsylvania State University) examine the role of oxidative stress as an aging mechanism as well as the role of potential defenses against oxidative damage, including nutrient intake, caloric restriction, and exercise. Although free radicals are considered agents of damage, the authors recognize that free radicals are also required for health maintenance. Despite the chapter's thorough examination of the effects of exercise and caloric restriction on oxidative damage, the authors should have more cautiously interpreted data regarding the positive effects of caloric restriction and resveratrol on health, which require further investigation in humans (this is especially the case for resveratrol about which there

have been recent news reports of fabricated and falsified data). Notably, and in line with the biobehavioral model, Motch and McCarter address the importance of genetics in determining the beneficial and adverse effects of calorie restriction on health as well as the underlying biochemical mechanisms involved in efficacy of caloric restriction on health outcomes.

Moving from the cellular level, Kathleen Welsh-Bohmer and colleagues (Duke University) outline genetic contributions to cognitive disorders, with a focus on modifiable targets that may prevent or slow the late-life progression of decline in cognitive function. The chapter, although insightful, would have benefited from a more in-depth discussion of gene-gene interaction effects in predicting change in cognitive function in late life.

Shari Waldstein (University of Maryland) and colleagues' chapter on hypertension and neurocognitive function in late life highlights only positive findings in the literature; however, the authors do present the limitations of studies that focus on hypertension, including those related to the difficulty in measuring hypertension and co-morbidities that may influence associations between hypertension or blood pressure and neurocognitive function. Greater emphasis should have been placed in this chapter on the relationship between hypertension and brain health (i.e., neuronal function), which may underlie the observed behavioral effects. Continuing on the theme of vascular disease, Benjamin Mast (University of Louisville) provides a thoughtful, extensive overview of geriatric depression and the contribution of vascular risk factors. Mast discusses the biopsychosocial aspects of vascular depression and offers a framework for examining the relationship between vascular disease and other co-morbid geriatric conditions, including cognitive decline and physical frailty. Finally, this section of the book concludes with a review of the literature on stress biology and health outcomes in older adults. Tara Gruenewald and Teresa Seeman (University of California, Los Angeles) contribute a thoughtful discourse on the complex interactions between changes in both immune and neuroendocrine activity, common to chronic stress exposure and aging. They argue that changes in biology with aging may render older adults more susceptible to the deleterious effects of chronic stress on health. A more detailed discussion on the interaction between psychological processes (e.g., coping, appraisal, personality) and biological underpinnings would have significantly contributed to the biobehavioral perspective presented here.

In the book's final section, Terrence Hill (Florida State University) describes a biopsychosocial model of religious involvement, health, and longevity in late life. This model includes psychosocial and biological mechanisms, including personality, psychological resources,

health behaviors, and biomarkers associated with health. Hill goes beyond the research and recognizes methodological and theoretical limitations, providing alternative explanations for observed results and recommendations for future research.

Next, Karen Hooker (Oregon State University) and colleagues address, from a lifespan development perspective, the association between personality and health. Although the chapter does not necessarily incorporate a biobehavioral model, the theoretical framework and presentation of data from the University of North Carolina Alumni Heart Study is a significant contribution. The authors focus on time-sampling as an important method to incorporate into research design in order to address variations in emotional experiences and physiological indices.

Linda Burton and Lea Bromell (Duke University) then advance an ethnographic perspective on childhood illness, family co-morbidity, and cumulative disadvantage on women's health. Although highly interesting and important, this chapter seems misplaced within the book's context due to the age of the sample cohort. The authors present data on the Three-City Study of primary caregivers from the ages of 15 to 40 and older; the 40 and older group composed only 14 per cent of the sample. Although it is possible to speculate on health trajectories based on the data, the findings are not representative of the older adult population.

J. Taylor Harden (National Institutes of Health) and colleagues next present a biobehavioral perspective on breast cancer and behavior in older women. As cancer in older adults is increasing, the authors argue that a biopsychosocial model is imperative to improve our current knowledge and individual health care practices (especially among older women). The authors' comprehensive account of existing research incorporates biological and genetic underpinnings, and behavioral and cultural factors affecting detection and treatment of breast cancer at all ages. This chapter further provides an insightful discussion on quality of life as a multidimensional concept.

Finally, Eileen Crimmins and Aaron Hagedorn (University of Southern California) end the section with an exhaustive summary of research on the relationship between neighborhood and the health of older adults. The authors refer to previous chapters, tying together individual level factors (e.g., personality and spirituality) with those at the society and community level (i.e., neighborhoods). This final chapter provides important theoretical groundwork for neighborhood research from a biobehavioral perspective.

Altogether, the book's chapters, although clearly written, often do not build well upon preceding ones.

This means, however, that each chapter can easily be read independently, which is a plus. Overall, this book provides important conceptual, theoretical, and empirical information that can guide and benefit students, researchers, practitioners, and policy makers alike.

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