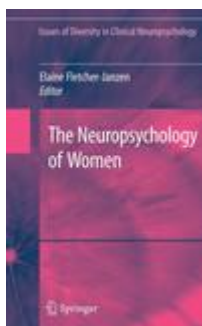


## Neuropsychology: Hers and His

A review of



### **The Neuropsychology of Women**

by Elaine Fletcher-Janzen (Ed.)

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Reviewed by

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From the time when Aristotle claimed that the leader of a hive is the king bee, that women have smaller brains than men, and that the female of the species has fewer teeth than the male (Mayhew, 2004), there have been attempts to pass off misogyny as science. In particular, pseudoscientific claims of biological differences have been used to justify oppression and disdain (see discussion in Gould, 1981). A book documenting sex and gender dimorphism is like a comedy routine—timing is everything. If the text appears before its time, it can be a breeding ground for prejudiced rationalization of flimsy conclusions. If the book is thoughtfully published when the field is ripe enough, it can combat those same prejudices.

*The Neuropsychology of Women* ventures into this risky territory. It attempts to identify and address sex- and gender-specific issues in neuropsychology. For this volume to be helpful rather than harmful, the empirical basis of its conclusions needs to be sufficient,

sound, and substantial, and the limits of knowledge need to be made clear. This edited volume achieves this balance and has the potential to substantially improve women's health care.

Editor Elaine Fletcher-Janzen is a private practitioner with abundant clinical experience and a distinguished list of publications in the field, as well as an in-depth knowledge of diversity issues in neuropsychology. One could not pick a better qualified guide. The chapter contributors are mostly women, increasing the probability of achieving a reasonably fair hearing of the subject matter. The authors certainly underline the importance of considering gender differences in both experimental and clinical neuropsychology but struggle with a field where the findings have often been equivocal or where research is still lacking. The writers are all very clear about the limitations of the research. They encourage and facilitate weighing the strength of the findings, for example, by mentioning the number of subjects involved in a research protocol. The work gains credibility because of the detailed exposition.

This book could not have been written much earlier. In 1977, in an effort to protect women, fetuses, and children from potential reproductive harm, the Food and Drug Administration (FDA) barred women of childbearing age from participating in most clinical research. This prohibition was not rescinded until 1993. Even radiation-based neuroimaging has been restricted in females. As a result, specific information about women did not start accumulating until quite recently and is still rather sparse. For example, in Chapter 3 of *The Neuropsychology of Women*, Semrud-Clikeman, Fine, and Bledsoe report a literature search on brain imaging of schizophrenic women in which they found "one fMRI study, one PET study, and one DTI study, having only five females included in the sample" (p. 56). We are treading on a path that is barely explored.

To complicate matters a bit more, some of the fundamental assumptions of brain imaging, upon which much of the research for the book is based, have come under skeptical inquiry. For some time hemodynamic changes in the brain were taken as firm signs of changes in neuronal firing; pictures of these changes formed the basis of many functional neuroimaging techniques. Recently hemodynamic signals have been found to be mostly related to changes in astrocyte functioning, not only to neuronal activation as it was once thought (Schummers, Yu, & Sur, 2008). In other words, increased blood flow in an area of the brain may not be a direct result of neurons firing. This remarkable observation has challenged the very basis of most functional brain imaging. Many of the conclusions found in this book are based on functional imaging techniques and have now been rendered open to reinterpretation.

With those caveats, some of the conclusions offered by this book include the following:

There are gender differences in brain morphology and development between women and men, although the extent to which brain development can be linked to cognitive and behavioral differences is still under study (p. 27).

Fewer women than men suffer traumatic brain injury, with the exception of injuries caused by motor vehicle accidents. Female rodents recover better from traumatic brain injury than do male rodents, and it is probably because of the influence of estrogen and progesterone. No firm conclusions can be drawn regarding humans (p. 80).

ADHD is not a unitary disorder, and there has been little research examining gender differences in ADHD subtypes. ADHD symptoms are similar in females and males (p. 115), although females tend to “act out” less (p. 120). There is a paucity of research examining gender differences in interventions for ADHD, although a key outcome study shows that combined interventions that include therapy and medication are superior for women (p. 121).

The genetic basis and cortical substrates of dyslexia are similar in females and males, although there have been consistent findings indicating that females have larger cortical areas in language-related areas of the brain (p. 140).

Epileptic seizure control interacts with the reproductive cycle in women. Treatment protocols require adjustment for endocrine variations and quality-of-life concerns, such as childbearing (p. 158).

In the normal aging process, gender differences tend to be small and inconsistent (p. 218), although perhaps female brains atrophy less. When it comes to pathology, women have a higher risk of Alzheimer’s disease, whereas men suffer more vascular disorders (p. 218).

Eating disorders have the highest female-to-male prevalence of any psychiatric disorder (p. 202), and there are few specific sex- and gender-based differential treatment suggestions (p. 203).

Beyond these findings, the volume includes a 53-page appendix delineating women’s health care competencies for medical students developed by the Association of Professors of Gynecology and Obstetrics. Fletcher-Janzen and her colleagues hope that this grid can be adopted and used as a guideline to develop sex- and gender-related neuropsychological competencies (p. 4). Given the very limited scope of our current knowledge in identifying

and addressing sex- and gender-specific issues in neuropsychology, their desire seems premature.

## Overall Observations

Each chapter in this book addresses issues that affect women solely, predominantly, or differently. Each chapter has different authors, different styles, and somewhat different perspectives; some chapters emphasize the psychometric and report-writing aspects of neuropsychology (for example, Nussbaum and Shepard's chapter on attention-deficit/hyperactivity disorder), and other chapters rely more heavily on the biological factors (e.g., Nelson and Ellison's chapter on brain development and plasticity). As in many edited books, there are some repetitions—the price of making each chapter basically self-contained—and the quality of the chapters is not uniform.

Having said that, I add that *The Neuropsychology of Women* contains some real gems. The chapter on the assessment, treatment, and management of epilepsy, written by Elaine Fletcher-Janzen herself, weaves together a wealth of information about epilepsy, endocrine functioning, and reproductive issues over the life cycle of women; it can change the approach of any practitioner who encounters this information for the first time. Nussbaum and Shepard's chapter on attention-deficit/hyperactivity disorder provides excellent background information about the neurological underpinnings of the diseases in children and adults, men and women. It provides concise and focused recommendations of useful instruments, samples of an integrated report, and summaries of outcome studies.

Each chapter starts with a general overview of the issue under consideration. These summaries are up to date and superbly written. In a nice reversal of how books of this type are usually written, this book about women can be used as an overview of specific neuropsychological issues for all sexes and genders. In fact, the information provided about the general knowledge in the field substantially outweighs the information about the particular findings concerning women.

The table of contents lists an index that should appear on page 315. In my copy of the book, there was no page 315 and no index. This is a pity since an overall index is very helpful in this kind of edited volumes, and it is sorely missed here.

In sum, *The Neuropsychology of Women* is a bold attempt to highlight the importance of sex and gender considerations in neuropsychology, but it is a bit ahead of its time in that information specific to women's issues is quite limited. The book fosters awareness of concerns particular to women and underlines the paucity of the available research. The book provides splendid overviews of specific issues in neuropsychology, and it is quite compelling in its promise that understanding the neuropsychology of women makes a crucial difference to science and clinical practice.

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