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Sensory Processing Disorder & Perceptual Distortion Syndrome: Implications in Assessment and Clinical Practice

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Abstract

This article examines the complications posed by different sensory distortions which are related to processing dysfunction and their impact on psychological testing and clinical practice. These distortions are subtle and may not relate specifically to cortical function, thus, resulting in errors of inference.

In developing neuropsychological and psychological measurement tools, we make several assumptions which can skew the data, and impair our ability, to draw inferences from the results. All research is plagued by a multitude of individualized factors (i.e., personal experiences of subjects, accumulative injuries, cultural deviations, seemingly minor physiological variations, undiagnosed complicating conditions, etc.). At best, these are qualifiers of the scope and limits of the research. Sensory processing and perception is also assumed to be relatively consistent between subjects in a study. One of the most difficult questions for research to answer is “cause” of a condition. When looking at visual-spatial abilities, we attempt to assure that the subjects have relatively normal vision and spatial orientation. Factors left out of most research, involving visual-spatial function, include the last eye examination, the absence or presence of corrective lenses, history of vision problems or injuries, colour blindness, and other visual difficulties which have not yet been diagnosed. We generally assume that we process sensory information, and perceive it, within a generally common range. Colour blindness is only one of the variants usually ignored [1,2]. Screenings for mild, moderate, and severe perceptual distortions are rarely completed. How many of the research subjects have been tested for auditory processing disorders such as auditory filtration impairment? How many have been tested for normal vision visual distortions such as impaired depth perception or scotopic sensitivity?

One of the most common tests, used to assess intellectual function is the Wechsler Adult Intelligence Scale (in one of its four incarnations), which has subtests aimed at examining specific functions. One of the assumptions which is made is that impairments in visual-spatial function are related to cortical function, but if there is a distortion created by the physiology involved in the sensing/encoding/transmission/decoding/interpretation process of perception, this assumption is in error [3]. Conclusions relating to visual-spatial impairment would have to also include the possibility that the cortical regions of the brain involved may be intact, and the perceptual mechanisms may be impaired. To reduce this possibility,

screening for these sensory perceptual distortions would have to be completed.

In examining the existing research, we need to look at visual-spatial impairment in a different manner, examining at what points the impairments in perception and cognitive processing occur. In performing research, and in performing neuropsychological assessments, it is imperative for us to question the factors impacting our findings.

One of the other factors which appear to complicate detection of the scope of the visual distortions is the internal chemistry of the individual. It has been found in clinical practice that the overlays, or tinted lenses, used to correct the distortion, must be reevaluated if the patient changes medications.

In 1980, Olive Meares, an educator in New Zealand, published a paper identifying difficulties some students had in visual perception impairing their ability to read and perform learning tasks [4]. In 1983, Helen Irlen, M.A., a psychologist in California, presented a paper at the American Psychological Association on Scotopic Sensitivity, and visual problems impairing learning and visual function, despite 20/20 vision [5]. Arnold Wilkins, Ph.D., who is famous for his work in visually induced seizures, presented the issues in play in his book Visual Stress [6]. The existence of these impairments has been well documented. One of the factors which I became aware of was that individuals with these normal vision impairments can have the distortion impacted by changes in medication, and variation in change in body chemical states. This is illustrated by the need to change the colour overlays, needed for correction of the distortion, after medication changes have occurred.

Auditory processing disorder (APD) is also well documented starting with the work of Helmer Rudolph Myklebust, Ph.D., a prominent U.S. psychologist, in his research into APD that began in 1954, “Auditory Disorders in Children” [7,8]. Similar developments in other aspects of sensory processing disorders have been made since over the years and documented in journals of occupational therapy, speech pathology and special education, but have rarely been considered as factors in psychological and neuropsychological assessments.



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One of the most threatening things to any scientist is to find that there are factors which undermine the conclusions that their research has shown, specifically if it was the basis that they made inferences upon. There have been decades of research drawing correlations between various IQ subtests, designed to identify visual-spatial impairments and other functions. It is incumbent upon us as professionals to state the limitations, scope, and complicating factors. We have the opportunity to provide this clarification, and refine our skills, by improving our ability to include these issues in our professional practice.

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