Neuropsychology : It's importance, scope and need.

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Abstract

The human brain is an incredibly complex and fascinating organ, and despite significant advancements in neuroscience, a-lot remains undiscovered. The field of brain research is dynamic and continually evolving, with new studies and discoveries being made regularly. Neuropsychology is a specialised branch of psychology that focuses on understanding the relationship between brain function and behavior. It seeks to uncover how different areas of the brain contribute to various cognitive processes, emotions, and behaviours through the lens of neuroscience, psychology, and biology. Neuropsychologists study individuals with brain injuries, disorders, or neurological conditions to gain insights into the functions of different brain regions and how they relate to specific cognitive and emotional functions. The field uses recently developed brain imaging techniques such as functional magnetic resonance imaging (fMRI) and positron emission tomography (PET). Electroencephalography (EEG) is another widely used neuroimaging technique that provides insights into the temporal dynamics of brain activity, as well as the localisation of different brain functions. A newly approved technology by the FDA provides a non-invasive, drug-free method of treating PTSD by utilising neurofeedback, a technique used to regulate and modify brain activity by providing real-time feedback to individuals about their brain's physiological processes measured through an EEG, typically through visual or auditory cues. Patients gain control over important brain connections between the frontal cortex and amygdala to improve their ability to manage their emotions and deal with stress. Participants in the study watch a monitor while the EEG readouts are being captured to target this pathway. The neurofeedback procedure offers individuals a practical ability to aid with emotion regulation outside of treatment sessions enabling people to recognise the connection between their mental and neurological states. Therefor, not only neuropsychology provides an elucidation of the relationship between the brain and behavior it also endeavours to bridge the gap between theory and practice.

Image

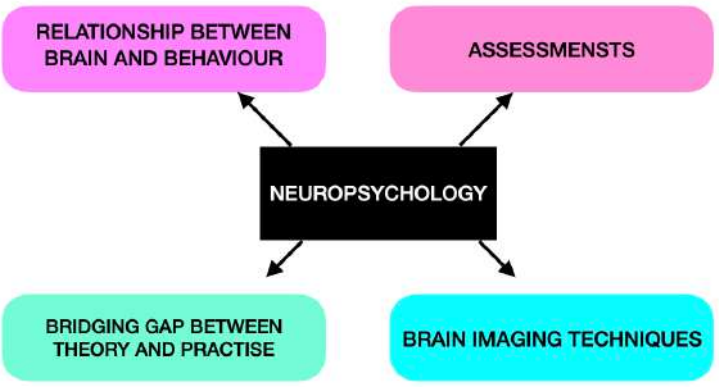


IMAGE 1 - Showing various aspects of neuropsychology.

Recent Publications / References (minimum 5)

1. Friedman, M. J., Resick, P. A., Bryant, R. A., & Brewin, C. R. (Eds.). (2011). *Handbook of PTSD: Science and practice*. Guilford Press.
2. Huettel, S. A., Song, A. W., & McCarthy, G. (2014). *Functional magnetic resonance imaging* (3rd ed.). Sinauer Associates.
3. Lezak, M. D., Howieson, D. B., Bigler, E. D., & Tranel, D. (2012). *Neuropsychological assessment* (5th ed.). Oxford University Press.
4. Niedermeyer, E., & da Silva, F. L. (2004). Electroencephalography: Basic principles, clinical applications, and related fields. Lippincott Williams & Wilkins.
5. Zagorski, N. (2023). FDA clears neurofeedback intervention for PTSD. *Psychiatric News*, *58*(08). https://doi.org/10.1176/appi.pn.2023.08.8.60



Biography

Anika Sharma is a psychology student with industrious and systematic approach to learning information. Having knowledge of psychological disorders, research methods, case history taking, conducting psychological assessments and MSE along with sufficient ms office skills gained during the course of a few internships and certification courses. She has completed trainings and internships at various institutions such as in an hospital or an organisational setup that has improved and added to her knowledge and skillset. Currently pursuing M.Sc. Neuropsychology from NFSU.

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Notes/Comments: