

A Study of Cognition in Relation with Hand Dominance

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Abstract

This was an experimental study done on 60 female subjects between the age group of 18-25 years to determine the effect of hand dominance on cognition. The subjects were selected through convenient sampling by using inclusion and exclusion criteria and were divided in two groups viz - Group A (comprising of right handed individuals) and Group-B (comprising of left handed individuals). Both the groups were assessed for their cognitive functions i.e. attention, memory and learning using Trail Making Test, modified MMSE and VAK learning questionnaire. Data was analyzed using independent 't' test and descriptive statistics. The left handers were found to be better in performing memory and attention tasks as compared to the right handers. Majority of left handers were found to have auditory learning style while majority of right handers were found to have visual learning styles.

Keywords: Hand Dominance, Cognitive Functions, Attention, Memory, Learning

Introduction

Cognitive processes are generally defined as the abilities that enable us to "think" which includes the ability to concentrate (pay attention), remember and learn. It is the method used by the central nervous system to process information and includes knowing, understanding and awareness (*Shimoda, 2008*). Assessment of cognition is the important component under physical examination of patient which includes assessment of memory, orientation and ability to assimilate and manipulate information. Because persons with cognitive deficit often cannot recognize their own impairments, cognitive intervention is being increasingly used for the treatment of many neurological conditions like Parkinson's disease, traumatic head injury, and stroke (*Peter & Durdning, 1979*). The cognitive intervention focuses on modification of individual thoughts and feelings, through examination of cognition that arises in response to

stressors. Complete understanding of cognition is important for planning effective treatment in patients with brain damaged due to various neurological insults like stroke and head injury. Various factors like age, gender, pregnancy, handedness, and systemic diseases like diabetes, hypertension etc are reported to affect patient cognition. *Naugels et al (1998)* stated that left hand dominant individuals are more prevalent among the patients suffering from dementia of Alzheimer disease which begins prior to the age of 65 as compared to right hand dominant individuals. The premotor area of cerebral cortex is involved with the control of hand movements and it is larger in left side of right handed individuals than in the left handed individuals (*Alexander, 1998*). Studies have found that the left hemisphere is important for language, logical decision making, in performing analytical task, mathematical calculation and performing fine motor skills (*Ferrari,*