Sub-Type Discernment of Attention Deficit Hyperactive Disorder in Children using a Cluster Partitioning Algorithm

M. Nachamai

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Abstract

Background/Objectives:
Attention deficit hyperactive disorder is one major neuropsychiatric disorder particularly found in children. This medical disorder is difficult to identify and quantify, even if done, it is very subjective as it is the discretion of the psychiatrists or parents.

Methods/Statistical analysis:
The most exigent task after identifying ADHD children is to find their exact deficiency of what is the category, is it a hyperactive disorder, an impulsive disorder or an attention deficit disorder. Each category insists a diverse form of treatment and training. With the MRI image data the Tr values are estimated and given for clustering, a k-means algorithm was deployed for clustering.

Findings:
With different distance measures k-means was able to cluster precisely the three categories from the data. The result obtained would be a very substantial data for the medical physicists and an inevitable philanthropic contribution for the children society combating against this disorder.

Applications/Improvements:
The method adopted is novel and concise approach to identify the type of ADHD prevalent children. The method can be further perfected and completely automated to identify the category of ADHD in children.