Maze test

The maze test is a psychological assessment tool used to measure cognitive abilities, problem-solving skills, and spatial orientation. It typically involves navigating through a maze or solving a maze-like puzzle within a given time frame.

The maze test is often used in neuropsychological evaluations to assess various cognitive functions, including attention, memory, planning, and executive functions. It can provide insights into a person's ability to analyze information, strategize, and find efficient solutions to problems.

During a maze test, individuals are typically presented with a maze or a series of interconnected paths and are instructed to find a specific route or reach a particular goal within the maze. The complexity of the mazes can vary, ranging from simple designs to more complex and challenging structures.

The test measures several aspects, including:

Spatial Awareness: The ability to understand the layout of the maze and mentally track one's position within it.

Problem-Solving: The capacity to devise effective strategies for navigating through the maze, considering obstacles, dead ends, and potential pathways.

Attention and Concentration: The test requires individuals to maintain focus and concentration while analyzing and navigating the maze.

Memory: The ability to recall previously visited paths, remember successful routes, or avoid repeating unsuccessful paths.

The results of the maze test are typically analyzed by comparing an individual's performance to a normative group or by examining their performance across different aspects of the task. This evaluation can provide valuable information about cognitive strengths and weaknesses and can aid in diagnosis, treatment planning, or academic or vocational recommendations.

It's important to note that the maze test is just one tool among many used in psychological assessments, and its interpretation should be done by trained professionals.

Executive function in people with depression is linked to the integrity of white matter fibers in the brain. Ma et al. hypothesized that the maze tests in neuropsychological tests assessed reasoning and problem-solving abilities dependent on the integrity of brain white matter fibers, and assessed this relationship using diffusion tensor imaging (DTI) in depressed patients and healthy controls.

Participants aged from 18 to 50 years were recruited from Zhumadian Second People's Hospital from July 2018 to August 2019. The sample included 33 clinically diagnosed individuals with major depressive disorder (MDD) and 24 healthy volunteers (HVs). All subjects underwent Neuropsychological assessment battery (NAB) maze tests and DTI. Tract-based spatial statistics technology in FSL software was used to process DTI data, and threshold-free cluster enhancement (TFCE) was used to perform multiple comparison corrections. The fractional anisotropy (FA) of white matter fibers in the MDD group and HVs group were compared and extracted. Pearson correlation was

used to analyze the relationship between FA and NAB scores and HAMD scores.

The mean NAB maze test score for the MDD group was lower than the HVs group, and the difference was statistically significant (F = 11.265, p = .037). The FA value of the body of corpus callosum and cerebral peduncle right in the depression group was lower than that in the healthy control group, and the difference was statistically significant (p < .05). FA value of the body of corpus callosum was positively correlated with NAB score (r = 0.400, p = .036), but not with the HAMD score (r = 0.065, p = .723).

The decreased ability of reasoning and problem-solving in major depressive disorder may be due to the decreased integrity of the white matter fibers of the body of the corpus callosum [1].

1)
Ma R, Luo Y, Liu S, Wang X, Guo H, Zhao M, Chen N, Liu P, Shi J, Li Y, Tan Y, Tan S, Yang F, Tian L, Wang Z. White matter abnormalities are associated with the declined ability of reasoning and problem-solving in major depressive disorder. Brain Behav. 2023 Jun 5:e3047. doi: 10.1002/brb3.3047. Epub ahead of print. PMID: 37278139.