Investigating Probabilistic Sequence Learning in Schizophrenia: modality-specific deficits in Motor Imagery

Poster

Comportamiento/Cognitivo - Behavioral/Cognitive

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Schizophrenia is a chronic disabling psychiatric disorder associated with well-documented memory deficits that are often difficult to assess using traditional subjective measures. This highlights the need for more objective approaches to evaluate memory impairments, as well as effective strategies to mitigate their impact. Probabilistic learning tasks are widely used to investigate implicit memory, where learning can occur not only through overt motor execution but also through motor imagery (mental practice of action without physical movement). The study examined the effects of motor imagery on implicit probabilistic sequence learning in individuals with schizophrenia using a Serial Reaction Time task. Forty healthy participants were assigned to motor execution - ME (n = 20) or motor imagery - MI (n = 20) groups, while thirty individuals with schizophrenia were assigned to MI (n = 14) and ME (n = 16). The task consisted of 750 auditory stimuli divided into five blocks, each requiring either an executed or imagined finger response. Healthy participants demonstrated implicit learning, characterized by reductions in reaction times and sensitivity to probabilistic structure, particularly under ME. Learning effects were attenuated under MI. The schizophrenia group showed generalized slowing and reduced learning. While some sensitivity to stimulus type was observed under ME, no improvement over time

was detected, and no consistent evidence of learning was found under MI. Implicit probabilistic learning is impaired in schizophrenia, and motor imagery does not appear to effectively support sequence learning, suggesting deficits in central mechanisms involved in integrating sequential information.

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