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A Preliminary Investigation of SPECT Differences between Individuals with Varying Levels of Anxiety

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Objective: The purpose of this study was to conduct an investigation of brain areas related to anxiety using SPECT scans. Method: Participants were administered a SPECT scan as part of a general evaluation for a wide variety of psychiatric disorders ranging from ADHD to schizophrenia and brain disorders. They were grouped based on their responses to symptom questionnaires targeting anxiety symptoms specifically. Three groups were formed and were based on quartiles: lower anxiety (1, 719), moderate anxiety (5, 239), and high anxiety (2, 663). Results: A MANOVA was significant at the .05 level, Wilks $\lambda = .954$; $F(116, 223) = 1.934$, $p = .001$. Individuals in the moderate and high groups had significantly greater blood flow than the low group in the left cerebellum and caudate. Individuals in the high group had significantly greater blood flow than the low group in the right cerebellum, and left and right olfactory bulbs. Individuals in the low group had greater blood flow than the high group in the left and right occipital lobe. Conclusion(s): The results demonstrated that various areas of the brain, based on average amount of blood flow, differ based on varying levels of self-reported anxiety symptoms. No significant pattern of results emerged, which could demonstrate that blood flow in individuals with high levels of anxiety more global changes rather than specific to one area of the brain. Future research should investigate more specifically the areas of the brain who differ between individuals to determine possible mechanisms by which they influence each other.

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