Projective Testing as Windows to the Mind: Unveiling Anxiety's Expression Through Artistic Mediums in Teenagers

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Nearly one in three of all Americans aged 13 to 18 experience an anxiety disorder. It is important now to accurately diagnose anxiety in adolescents. Current methods of diagnosis involve psychological evaluations and questionnaires. However, unconscious bias and stereotypes can impact the diagnosis, and it can vary between professionals, creating confusion. Are these current methods really the most accurate and effective? The purpose of this study is to explore a novel method to evaluate anxiety levels in individuals using a modified version of the House-Tree-Person Test and to uncover a statistical correlation between lexical density and anxiety levels. The 107 individuals who participated in this method drew and colored a scene with a house, tree, and person, just like the original test. However, this dual-modal approach asked participants to verbally describe a story that explains the scene. This study used the Shapiro-Wilk Test, Independent Sample T-Test, and Mann-Whitney U Test to analyze the characteristics of the audio and scene. The results revealed a moderate negative correlation($p<.05$) between DASS-42 scores and lexical density. There was a statistically significant difference between the anxious and healthy groups in their lexical density levels($p<.05$) and a positive correlation in their voice pitch($p<.05$). A digitized version of the modified projective test was developed, using deep learning and neural networks, to provide predictions of anxiety levels. This research not only challenges the status quo in anxiety assessments but also opens doors to inspire future studies, in hopes of creating a digital real-time speech and drawing analysis system that evaluates anxiety.