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Thinking Aloud: A Study of Thought Dynamics in Depression and Anxiety

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Abstract

Self-generated thoughts (SGTs) constitute a central component of human cognition, yet their dynamics remain poorly understood, particularly regarding affective symptomatology. We combined the Think Aloud Paradigm (TAP) with Natural Language Processing to investigate affective and semantic dynamics of SGTs in individuals with and without depression and anxiety symptoms (N = 67). Participants verbalized their thoughts for 10 minutes, rated affective valence of their speech, and transcripts were segmented into thought units. We examined affective transitions and quantified semantic similarity between thoughts using embedding-based measures. Clinical participants reported more negative thoughts, greater persistence of negative states and less stable positive states. Semantic analyses revealed reduced semantic diversity across speech in the clinical group. Moreover, negative valence predicted greater similarity toward the following thought. These findings show that individuals with depression and anxiety exhibit more negative and constrained SGTs, indicating TAP measures capture dynamic features of introspective cognition, relevant for clinical research.