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# Measuring Emotion Dynamics on Facebook: Associations between Variability in Expressed Emotion and Psychological Functioning

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**Abstract :** Examining time-dependent measures of emotion such as variability, instability, and inertia, provide critical and complementary insights into mental health status. Observing changes in the pattern of emotional expression over time could act as a tool to identify meaningful shifts between psychological well- and ill-being. From a practical standpoint, however, examining emotion dynamics day-to-day is likely to be burdensome and invasive. Utilizing social media data as a facet of lived experience can provide real-world, temporally specific access to emotional expression. Emotional language on social media may provide accurate and sensitive insights into individual and community mental health and well-being, particularly with focus placed on the within-person dynamics of online emotion expression. The objective of the current study was to examine the dynamics of emotional expression on the social network platform Facebook for active users and their relationship with psychological well- and ill-being. It was expected that greater positive and negative emotion variability, instability, and inertia would be associated with poorer psychological well-being and greater depression symptoms. Data were collected using a smartphone app, MoodPrism, which delivered demographic questionnaires, psychological inventories assessing depression symptoms and psychological well-being, and collected the Status Updates of consenting participants. MoodPrism also delivered an experience sampling methodology where participants completed items assessing positive affect, negative affect, and arousal, daily for a 30-day period. The number of positive and negative words in posts was extracted and automatically collated by MoodPrism. The relative proportion of positive and negative words from the total words written in posts was then calculated. Preliminary analyses have been conducted with the data of 9 participants. While these analyses are underpowered due to sample size, they have revealed trends that greater variability in the emotion valence expressed in posts is positively associated with greater depression symptoms ($r(9) = .56$, $p = .12$), as is greater instability in emotion valence ($r(9) = .58$, $p = .099$). Full data analysis utilizing time-series techniques to explore the Facebook data set will be presented at the conference. Identifying the features of emotion dynamics (variability, instability, inertia) that are relevant to mental health in social media emotional expression is a fundamental step in creating automated screening tools for mental health that are temporally sensitive, unobtrusive, and accurate. The current findings show how monitoring basic social network characteristics over time can provide greater depth in predicting risk and changes in depression and positive well-being.

**Keywords :** emotion, experience sampling methods, mental health, social media
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