

Showing without telling: Indirect identification of psychosocial risks during and after pregnancy

Kristen Allen

Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

Alex Davis

Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

Tamar Krishnamurti

University of Pittsburgh, PITTSBURGH, Pennsylvania, United States

Abstract

During the perinatal period, psychosocial health risks, including depression and intimate partner violence, are associated with serious adverse health outcomes for both parent and child. To appropriately intervene, healthcare professionals must first identify those at risk, yet stigma often prevents people from disclosing the information needed to prompt an assessment. We use techniques from natural language processing to indirectly identify psychosocial risks in the perinatal period. We apply latent Dirichlet allocation (LDA) and latent semantic indexing (LSI) to categorize themes from brief diary entries by pregnant and postpartum women and apply sentiment analysis to characterize affect, then perform regularized regression to predict diagnostic measures of depression and emotional intimate partner violence. Journal text entries quantified through sentiment analysis and topic models show promise for improved identification of depression and intimate partner violence, both stigmatized risks. Such methods may serve as an initial or complementary screening approach.