

# Examining Sentiment and Depression in Survivors of Intimate Partner Violence

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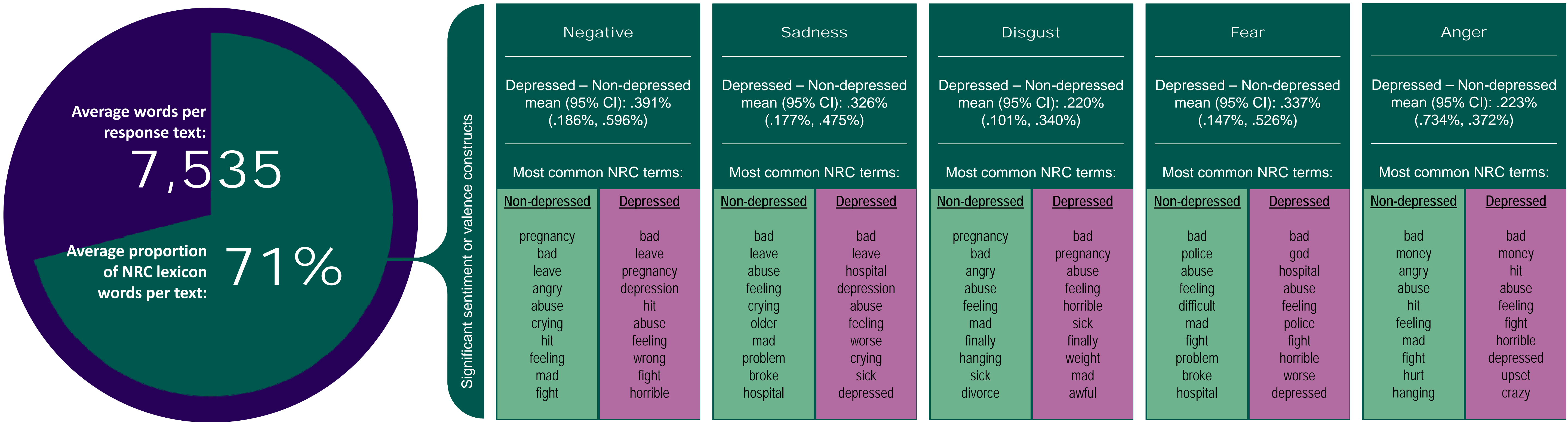
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**Introduction:** Intimate partner violence (IPV) and depression are two of the most well-documented psychosocial stressors faced by perinatal women, with estimates of 3.9%-8.3% IPV and 7.1%-12.7% depression. Each present immediate as well as long-term health risks to both the woman and her infant. Because IPV and depression often go hand-in-hand, their impact is cumulative and each can exacerbate the consequences of the other.

We hypothesize that language analysis can be used effectively as a preliminary screening tool in a clinical environment.

**Methods:** This mixed methods analysis combined quantitative results from a community-based survey study (Kothari, 2014) of 326 postpartum women. IPV was assessed via phone interview using three questions for current or past emotional or physical abuse:

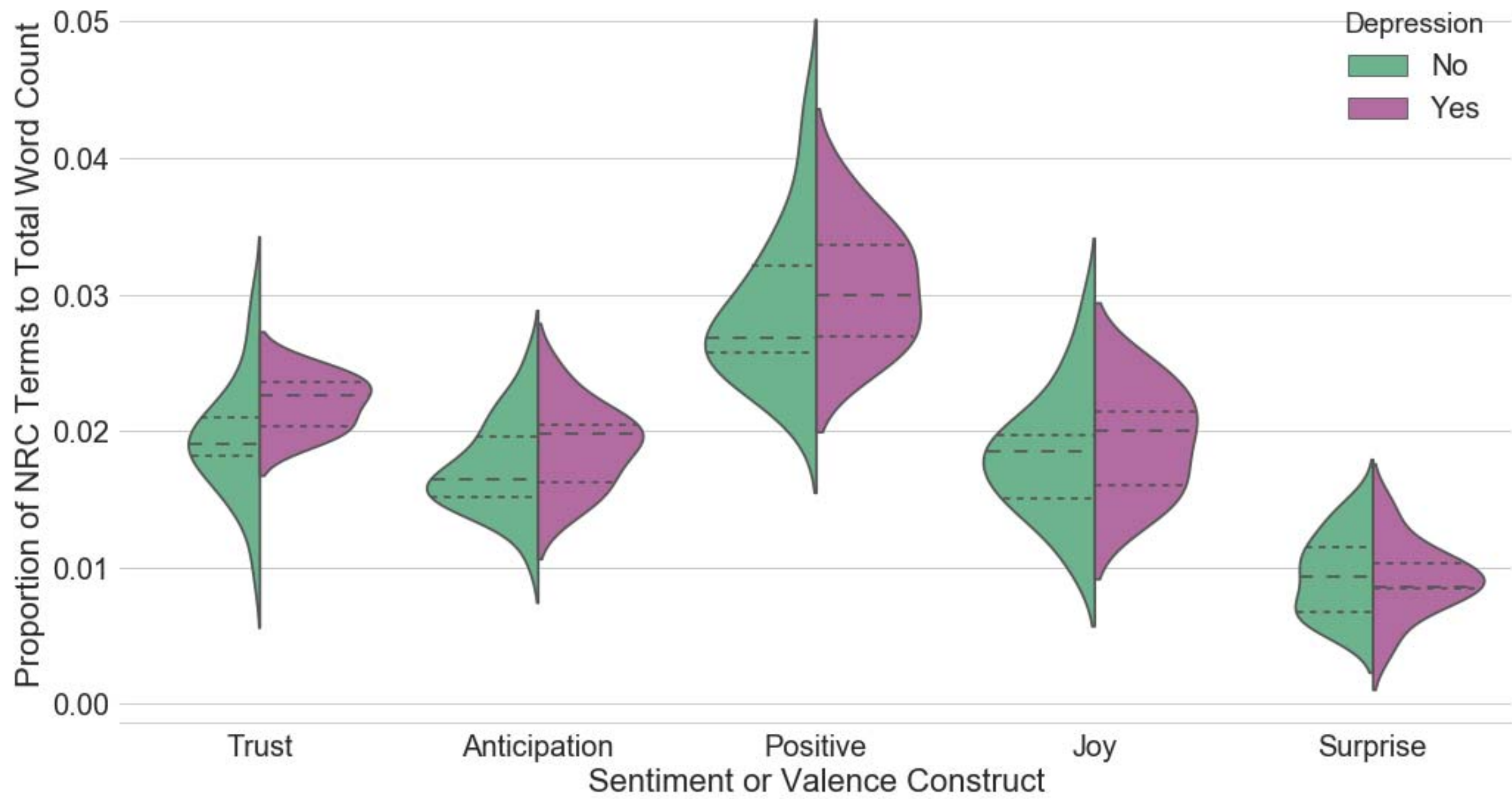


Smoothed Distribution of Proportion of NRC Sentiment or Valence Words, Depressed vs. Non-depressed.

Significant Sentiment or Valence Constructs:



Non-significant Sentiment or Valence Constructs:



**Results:** Women with major depressive disorder used a greater proportion of words associated with negativity ( $p=0.0005$ ), anger ( $p=0.0049$ ), disgust ( $p=0.0027$ ), fear ( $p=0.0047$ ), sadness ( $p=0.0012$ ), and a smaller proportion of trust words ( $p=0.0232$ ). Permutation hypothesis tests confirm findings that the average word proportions for negative ( $p=.0004$ ), anger ( $p=.0057$ ), disgust ( $p=.0007$ ), fear ( $p=.0009$ ), and sadness ( $p<.0001$ ) significantly differ for depressed versus non-depressed, while trust ( $p=.0862$ ) was found to be marginally significant. Regression analyses revealed that negativity ( $p=0.0031$ ), anger ( $p=0.0407$ ), disgust ( $p=0.0015$ ), fear ( $p=0.0004$ ), sadness ( $p=0.0003$ ), and trust ( $p=0.0187$ ) were significant in individually predicting maximum depression score.

**Results, continued:** Bivariate regression estimates reveal that for every .01% increase in proportion of negative, anger, disgust, fear, sadness, and trust words, respectively, we expect an increase in maximum post-natal depression score of 8.86, 9.38, 16.31, 11.41, 13.59, and 5.72.

**Discussion:** Underlying psychological maladies may have psychosomatic complaints manifest. Our goal is to develop more sensitive intake procedures. Victims of IPV may present their narrative in myriad ways to providers and may need counseling support earlier in their medical visit. We posit that this analysis in entirety is a first step towards building more robust studies around domestic violence screening measures using sentiment analysis. As it's unreasonable to conduct a full-scale structured interview with each patient during intake, our study points towards identifying appropriate screening questions for providers to ask patients and key terms to listen for during exams.

## References:

Kothari, C. L. (2014). *The Intersection of Depression, Partner Violence and Poverty During the Perinatal Period*. (Unpublished doctoral dissertation.) Western Michigan University, Kalamazoo Michigan.

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Mohammad, S., Turney, P. *Crowdsourcing a Word-Emotion Association Lexicon*. *Computational Intelligence*, 29 (3), 436-465, 2013. Accessed via Jockers, ML. (2015). *Syuzhet: Extract Sentiment and Plot Arcs from Text*. <https://github.com/mjockers/syuzhet>.

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