

Relationship between measures of health literacy and depression in an observational study of diverse, urban participants

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Introduction

- Health literacy refers to how well an individual can obtain, process, and understand basic health information.
 - relationship between literacy levels and measures of global cognitive function
 - Associated with poor health outcomes and poor use of health services
- Depression has cognitive impacts
- Possible that depressive symptoms are related to levels of health literacy.

Methods

PARTICIPANTS: English- and Spanish- speaking adults from the Boston and Chicagoland areas. $N=455$

MEASURES:

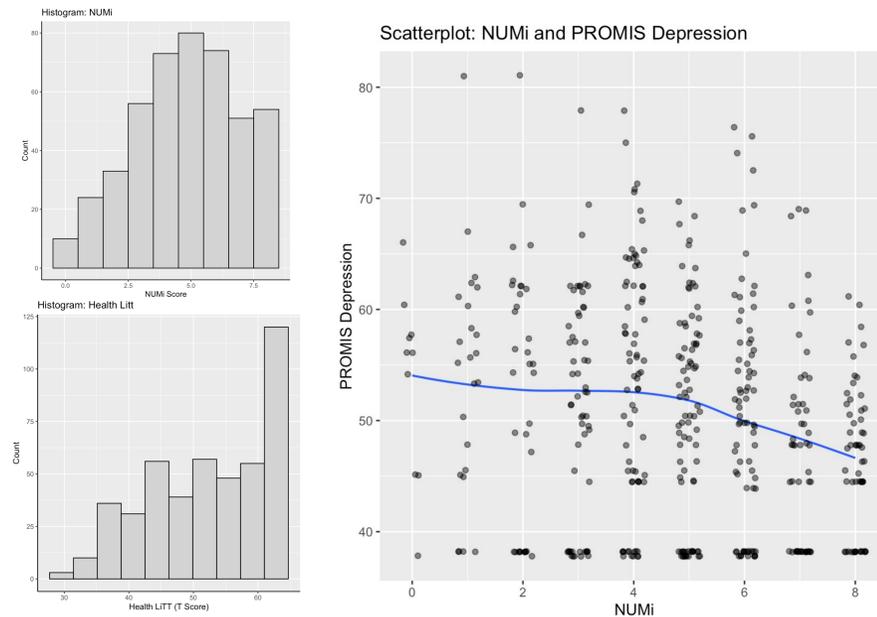
Health Literacy Measures

- Health Literacy Assessment Using Talking Touchscreen Technology (Health LiTT),
- Numeracy Understanding in Medicine Instrument (NUMi), and the
- Single Item Literacy Screener (SILS)

Additional Measures

- The Patient-Reported Outcomes Measurement Information System (PROMIS) Depression Short Form 8a scale
- Montreal Cognitive Assessment Test–Basic (MOCA-B)

We hypothesized a negative relationship with lower scores on health literacy measures associated higher depression symptoms. We also explored the unique variance of health literacy associated with depression, after covarying out a measure of cognition.



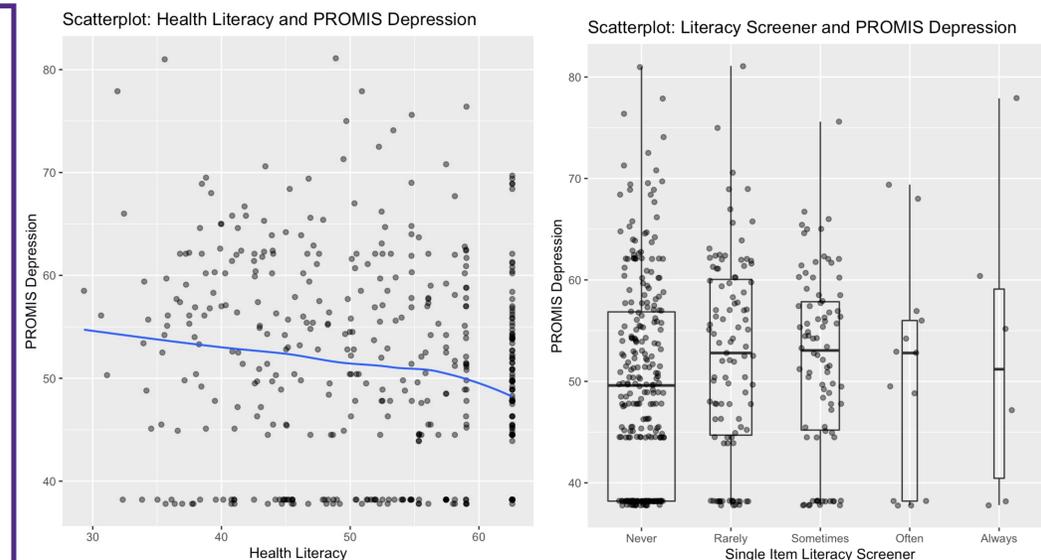
Results

All analyses were completed in R. Main effects and interaction terms were considered significant if the associated p-value was less than 0.05 (two-tailed). In bivariate analyses, NUMi and Health LiTT, were both significantly related to PROMIS Depression, $r(453) = -0.20$, 95% CI = -0.29 - -0.11; $r(453) = -0.18$, 95% CI = -0.27 - -0.01, respectively). The bivariate SILS model was not significant ($r(453) = 0.08$, 95% CI = -0.01 - 0.17).

To examine unique variance for each health literacy measure, we used multiple regression with depression regressed on all three health literacy measures, which accounted for 4% of the variance in PROMIS depression; only the NUMi was a significant covariate in the model with a small effect size in the predicted direction ($B = -0.68$, $\beta = -0.14$, $p = 0.04$). Although both the SILS and Health LiTT indicated a relationship between health literacy and depression in the predicted direction (i.e., lower health literacy associated with higher depression), they were not significant in the three-variable model ($B = 0.09$, $\beta = 0.01$, $p = .86$; $B = -0.08$, $\beta = -0.07$, $p = .31$, respectively). The NUMi remained statistically significant even when the MOCA-B as a measure of cognition was added to the model ($B = -0.72$, $\beta = -0.15$, $p = 0.03$). The MOCA-B was not a significant covariate ($B = 0.15$, $\beta = 0.05$, $p = 0.41$).

Discussion

- These analyses demonstrate a small but significant **association between depressive symptoms and health literacy.**
- It is possible that if a person is currently depressed, their health literacy scores might be in a lower state. Health information, therefore, might be less adequately received when a person is currently depressed.
- Thus, retesting health literacy when the person is less depressed may be a better measure of the person's peak capacity.
- Gaining a better understanding of this could provide support for personalized methods of intervention, perhaps targeting understanding of symptoms, and memory for treatment information.
- Further research might explore if different health literacy scales measure different concepts differentially contributing to aspects of health outcomes.



References

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