Spirituality and Error Processing

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INTRODUCTION

- Hundreds of articles have been published in psychology journals investigating spirituality and its uses in therapy and as a coping mechanism. However, little research has been done on the effect of spirituality and neurological processes.
- Inzlicht et al. (2009) asserted that both belief in God and high religious zeal were correlated with smaller ERN amplitudes. However, in Inzlicht’s study only those who were highly zealous spiritually and if the participants believed in God. Nothing about the components of spirituality were examined.
- In order to fully assess the components of spirituality the Spirituality Assessment Inventory (SAI) was administered and the various subscales analyzed.

Hypothesis
- We suggest that individual components of spirituality will significantly correlate with the ERN more than the holistic belief in God.

METHODS

- **Performance Monitoring and Empathy**
- **Error-Related Negativity/Post-error Positivity**

- **EEG Acquisition**
- **ERP Reduction**

- **Statistical Analysis**
  - Differences between congruent and incongruent trials were examined using within subjects paired-sample t-tests.
  - Pearson’s product-moment correlations were utilized to determine the relationship between spirituality and behavioral indices of error (i.e., post-error slowing, ERN, and Pe).

- **Subsequent partial correlations controlled for the potential contributions of negative affect to the relationship between empathy and indices of error processing.**
- **Multiple regression analyses with the composite grand trial difference score as the dependent variable were used to determine the unique correlates of empathy and ERN amplitudes.**

PARTICIPANTS

- 42 Healthy participants were tested in this study (21 female).

SUMMARY TABLE

<table>
<thead>
<tr>
<th></th>
<th>ERN Diff</th>
<th>SAI Aware</th>
<th>SAI RealAccept</th>
<th>SAI Disappoint</th>
<th>SAI Grandiosity</th>
<th>SAI Instability</th>
<th>SAI ImpressMgmt</th>
<th>RH II</th>
<th>STAI Trait</th>
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<td>ERN</td>
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<td>0.236</td>
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CONCLUSIONS

- In the first analysis no relationship was found between the positive spirituality subscales, e.g., Realistic Acceptance, Awareness, Impression Management, and smaller ERN amplitudes.
- Two of the negative subscales of the SAI, Disappointment and Instability, demonstrated correlations with smaller ERN amplitudes. The third, Grandiosity, did not exhibit a relationship with ERN amplitudes in any significant way.
- The Disappointment and Instability subscales are both associated with a lower sense of self-efficacy or internal control. The positive subscales are more associated with a greater sense of self-efficacy and resiliency to negative outcomes. Grandiosity as a subscale measures the degree to which an individual believes they can influence God, implying that higher grandiosity scores correlate with a greater sense of control or power.

ACKNOWLEDGEMENTS

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