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# Measurement of Beta and Theta Brain Wave Coherence with Cardiac Wave Rhythm in Managers with Rational Decision-Making Style Based on Emotional Intelligence through ERT Cognitive Task

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|---|---|
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## 1. Round 1

### *1.1. Reviewer 1*

Reviewer:

In the introduction, the statement "Neuroscience through the study of biological and chemical processes in the brain provides the potential for excellence in leadership and managerial processes" (p. 1) is quite broad. Please clarify which specific biological and chemical processes are being referred to and how they specifically relate to leadership and managerial excellence.

The methods section describes a quasi-experimental approach without a control group (p. 2). This design choice needs a stronger justification. Why was a control group not included, and how might this impact the validity of the findings?

The criteria for selecting participants (managers with physical health and no prior brain or heart disorders) are mentioned briefly. Please provide more details on how these criteria were assessed and verified.

The ERT cognitive test is mentioned briefly. A more detailed description of the test, including example items and how it measures emotional intelligence, would be helpful for readers unfamiliar with this tool.

The data analysis section mentions the use of analysis of variance and mean comparison test via SPSS-26. Please specify which specific statistical tests were used, the reasons for choosing these tests, and how assumptions were checked.

The findings state that "No coherence between EEG and ECG was observed in the resting state compared to the cognitive task state" (p. 3). This is a significant finding that needs more in-depth discussion. What do these results imply about the relationship between brain and cardiac activity during rest versus cognitive tasks?

The discussion mentions variability in brain wave activity among managers with similar decision-making styles (p. 5). Please provide more insight into possible reasons for this variability and how it aligns with or contradicts previous research.

Authors uploaded the revised manuscript.

### *1.2. Reviewer 2*

Reviewer:

The introduction lacks a detailed rationale for why the coherence of beta and theta brain waves with cardiac rhythms in managers is important. Please elaborate on the practical implications of this study for managerial practices and decision-making.

The literature review section mentions several studies (e.g., McCraty et al. 2004; Hansen et al. 2003), but it would be beneficial to discuss the specific methodologies and findings of these studies in more detail to establish a stronger foundation for your research.

The introduction does not explicitly state the hypotheses being tested. Please add a clear statement of the research hypotheses to guide the reader on what to expect from the study.

The sample size of 30 participants is relatively small. Please provide a power analysis or another form of justification for this sample size to ensure it is adequate to detect significant effects.

The methods section describes the use of the ProComp 2 neurofeedback tool and the BioGraph Infiniti software. Please include more details on the calibration, reliability, and validity of these instruments.

In Table 6, the increase in the LF/HF ratio during the ERT cognitive task is highlighted. Please discuss the physiological and psychological implications of this finding in more detail.

The practical applications of the findings are touched upon briefly. Please expand on how these results can be used to improve managerial decision-making and emotional intelligence training programs.

Authors uploaded the revised manuscript.

## 2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.



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