

# Systematic Review of Associations Between Interoception, Vagal Tone, and Emotional Regulation

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*Abstract*— **Background:** Interoception and heart rate variability have been found to predict outcomes of mental health and well-being. However, these have usually been investigated independently of one another. **Objectives:** This review aimed to explore the associations between interoception and heart rate variability (HRV) with emotion regulation (ER) and ER strategies, within the existing literature and utilising systematic review methodology. **Methods:** The process of article retrieval and selection followed the preferred reporting items for systematic review and meta-analyses (PRISMA) guidelines. Databases PsychINFO, Web of Science, PubMed, CINAHL, and MEDLINE were scanned for papers published. Preliminary inclusion and exclusion criteria were specified following the patient, intervention, comparison, and outcome (PICO) framework, whilst the checklist for critical appraisal and data extraction for systematic reviews of prediction modelling studies (CHARMS) framework was used to help formulate the research question, and to critically assess for bias in the identified full-length articles. **Results:** 237 studies were identified after initial database searches. Of these, eight studies were included in the final selection. Six studies explored the associations between HRV and ER, whilst three investigated the associations between interoception and ER (one of which was included in the HRV selection too). Overall, the results seem to show that greater HRV and interoception are associated with better ER. Specifically, high parasympathetic activity largely predicted the use of adaptive ER strategies such as reappraisal, and better acceptance of emotions. High interoception, instead, was predictive of effective down-regulation of negative emotions and handling of social uncertainty, there was no association with any specific ER strategy. **Conclusions:** Awareness of one's own bodily feelings and vagal activation seem to be of central importance for the effective regulation of emotional responses.

**Keywords**— Emotional regulation; Vagal tone; Interoception; Chronic Conditions; Health and Well-Being; Psychological Flexibility

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