

Category:**Study Type:** Systematic Review**Author's Declarative Title:** Blunted stress reactivity is a distinctive feature in clinically depressed patients**Commentary on:** Schiweck C, Piette D, Berckmans D et al. Heart rate and high frequency heart rate (HF-HRV) variability during stress as biomarker for clinical depression. A systematic review. *Psychol Med.* 2018 Aug 23;1-12. doi: 10.1017/S0033291718001988**Commentary*****Implications for practice and research***

- Nurses must be aware that clinically depressed patients may exhibit reduced heart rate variability in response to stress
- Future research in this area needs to use larger sample sizes, and consider other factors such as childhood trauma history, subjective stress ratings, sleep quality, and co-morbidity with anxiety disorders.

Context

Depression is the leading cause of disability and morbidity worldwide.¹ A complex mix of biopsychosocial risk factors is thought to contribute to the development and maintenance of depression.² One of these factors is chronic mental stress.³ The review by Schiweck and colleagues indicates that despite an increasing volume of research, there remains obscurity around the effects of depression on stress reactivity.⁴ An increased understanding of this may have important contributions for future remote monitoring and individualized care. Therefore this review sought to explore and evaluate what the evidence base says about Heart Rate (HR) and High Frequency Heart Rate Variation (HF-HRV) as measurable indicators for stress reactivity in clinically depressed patients.

Methods

The evidence based PRISMA guidelines were used in this systematic review.⁵ Inclusion criteria consisted of studies that used electrocardiography (ECG) testing in adults with major depressive disorders. The studies identified had to report on high frequency heart rate variability or respiratory sinus arrhythmia. Furthermore, studies needed to include the identification of clinical depression. Studies that involved patients with schizophrenia, bipolar disorder, eating disorders, autism, chronic fatigue syndrome or irritable bowel syndrome as the predominant diagnosis were excluded. There is no clear indication of whether the included papers were appraised for quality or not, however Schiweck and colleagues provide information about the sample characteristics, data extraction and a comparison of the study designs used by each paper. The authors highlight that heterogeneity in the included papers made it impossible to undertake a meta-analysis; hence, they justifiably carried out a qualitative synthesis of the findings.

Findings

Findings from the eleven included studies indicated that depressed patients had a different HR and HF-HRV stress reactivity profile when compared to non-depressed patients. ECG tests showed that depressed patients had blunted stress reactivity which was demonstrated by a lower fluctuation in HR and HF-HRV. Interesting findings that require further empirical

exploration included; blunted stress reactivity in depressed women that have a history of childhood trauma, and gender differences in stress reactivity. Because reactions to stress can be reliant on the type of stressor, future study designs should address the importance of subjective reports of stress in relation to the task reaction.

Commentary

This is a timely systematic review that purports to be the first to evaluate HR and HF-HRV reactivity to specific stress tasks. The authors are transparent about the processes and methods they employed and this instils confidence in the internal validity of the review. Having two authors independently identify, assess eligibility and extract data in the selected papers, and enlisting a third author to resolve any disagreements shows an attempt at reducing selection bias. The authors acknowledge that the small number of studies in the review may limit the extent to which the findings may be generalizable to a wider population or to a wider range of stressors. They further note potential for publication bias which may have resulted in the overrepresentation of studies with a positive outcome. That said, this review is robust, and its findings make an important contribution to the body of knowledge on heart rate as a measurable indicator for clinical depression.

Evidence shows that a combination of a high resting heart rate and depressive symptoms increases the risk of mortality.⁶ Schiweck and colleagues argue that there is value in also measuring heart rate in response to stress as this can provide more information than resting heart rate. This information might help to modify current practice and improve individualized care.

Key observations made in this review relate to important areas for future research. It is recommended that future studies should explore childhood trauma and its influences, comorbid diagnoses of anxiety disorder and features of the population under investigation (including medication use and how long the illness has been experienced). These factors have not been explored in the studies incorporated within this review by Schiweck and colleagues. Furthermore, research comprising of stress in real life situations could support the development of additional approaches in clinical practice.

References

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