



THE RELATIONSHIP BETWEEN OCD AND RSA AS EXPLAINED BY WORRY



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Independent Researchers Investigating Emotion

Summary

Background

- Respiratory Sinus Arrhythmia (RSA), associated with emotional flexibility, is decreased in individuals with anxiety and worry.
- The relationship between RSA and OCD is understudied.

Purpose

- Investigate the relationship of RSA and OCD by looking at resting RSA in individuals with high OC symptoms.
- Explore which specific symptoms (OC, worry, anxiety) of this disorder might account for any RSA findings in OCD.

Methods

- ECG data was recorded at rest for six minutes.
- Compared groups with relatively pure symptom profiles on OC, worry, and anxiety symptoms relative to a "typical" OC group with a mix of these three symptoms and a Control group.

Results

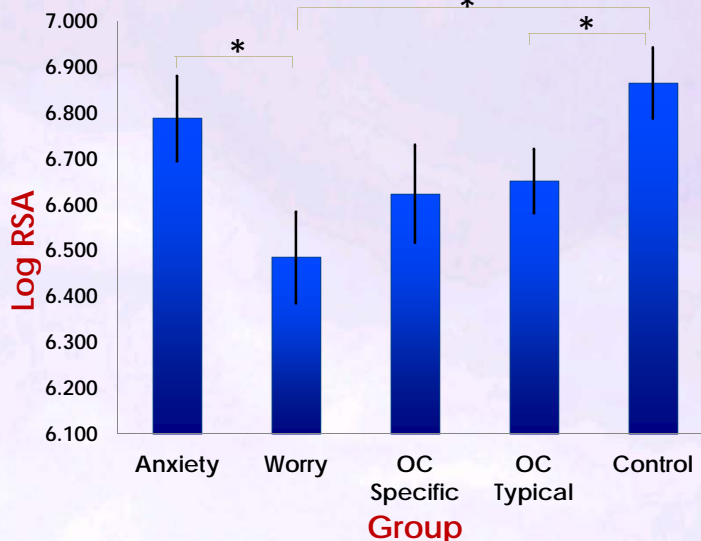
- The lowest RSA was observed in Worry and among OC participants with the typical symptoms, compared to controls.

Conclusion

- Lower RSA is observed in people with high worry symptoms but also in individuals with high OC symptoms.

Results

Figure 1: Log RSA by Group



Post Hoc

- Worry and OC Typical were the only two groups with significantly lower RSA relative to Control group ($p=.003$ and $p=.041$).
 - OC specific was shy of being statistically lower than Control group ($p=.067$)
 - Worry group log RSA was significantly smaller than the Anxiety group ($p=.026$)

Methods

Participants

	Anxiety (20)	Worry (17)	OC Specific (15)	OC Typical (35)	Control (29)
OCI-R	Low	Low	High	High	Low
TAI	High	Low	Low	High	Low
PSWQ	Low	High	Low	High	Low

- Data are a subset of a larger project looking at brain electrical activity across the same groups.

Procedure

- Participants were consented and ECG was setup.
- Participants completed six 1-min blocks of continuous rest while their ECG was recorded.

ECG Recording and Processing

- ECG was recorded in a Lead I setup on a Synamps² system with Ag/AgCl electrodes attached on right and left collar bones
- Heart series sampled at 500 Hz
- Offline analysis of EKG with QRSTool Software (Allen et al., 2007)
- CmetX Cardiac Metric Software to extract log-transformed heart rate variability in the high frequency band (.12-.4 Hz) for each minute, and then averaged across minutes

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Discussion

- RSA "has been conceptualized as an index of physiological and psychological flexibility" (Kogan et al., 2012, p. 105), with individuals with high levels of worry or anxiety having lower RSA than healthy controls.
- Although this results had been replicated in anxiety disorders such as panic disorder, PTSD, GAD, phobias; it's relationship with OCD had not yet been research thoroughly (Friedman et al., 2007)
- Groups with high OC symptoms (OC Typical and OC Specific) had significantly (or marginally) lower log RSA scores relative to the Control group, suggesting that the trend observed in other anxiety disorders could also be replicated in **Obsessive Compulsive Disorder**.
- Furthermore, the **worry** group was also significantly lower than Control consistent with previous research findings (Thayer et al., 1996; Hofmann et al. 2005; Delgado et al., 2009).
- Future research could focus on understanding whether the lower RSA across groups reflects a shared mechanism that creates emotional dysregulation in all groups, or whether the lower RSA is seen among those high in worry or high in OC symptoms as a consequence of the dysphoric affect that characterizes these disorders.

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