Eudaimonic Well-Being and Heart Rate Variability Among Midlife and Older Women

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INTRO:

The **purpose** of the current study was to investigate the association between eudaimonic well-being and Heart Rate Variability (HRV) in midlife and older women.

- Psychological well-being is associated with reduced risk of disease and cardiovascular-related mortality (Boehm et al., 2017).
- HRV has been positively associated with cheerfulness, calmness, and satisfaction of life while mediated by executive emotion regulation (Geisler et al., 2010).
- Cardiac Vagal Tone was quadratically related to multiple well-being measures including life satisfaction (Kogan et al., 2013)

METHODS:

The **Daily Activity and Health in the Lives of Adult Women (DAHLiA)** study investigated the relationship between physical pain and well-being in 200 midlife and older women (age 50 to 76) in a longitudinal burst design (**9 week-long bursts taking place every 3 months**). The current sample consisted of 191 of these participants. The DAHLiA study involved measures of immunity and general health, which excluded participants who had serious medical conditions or physical ailments. Therefore, participants in the study were generally healthy.

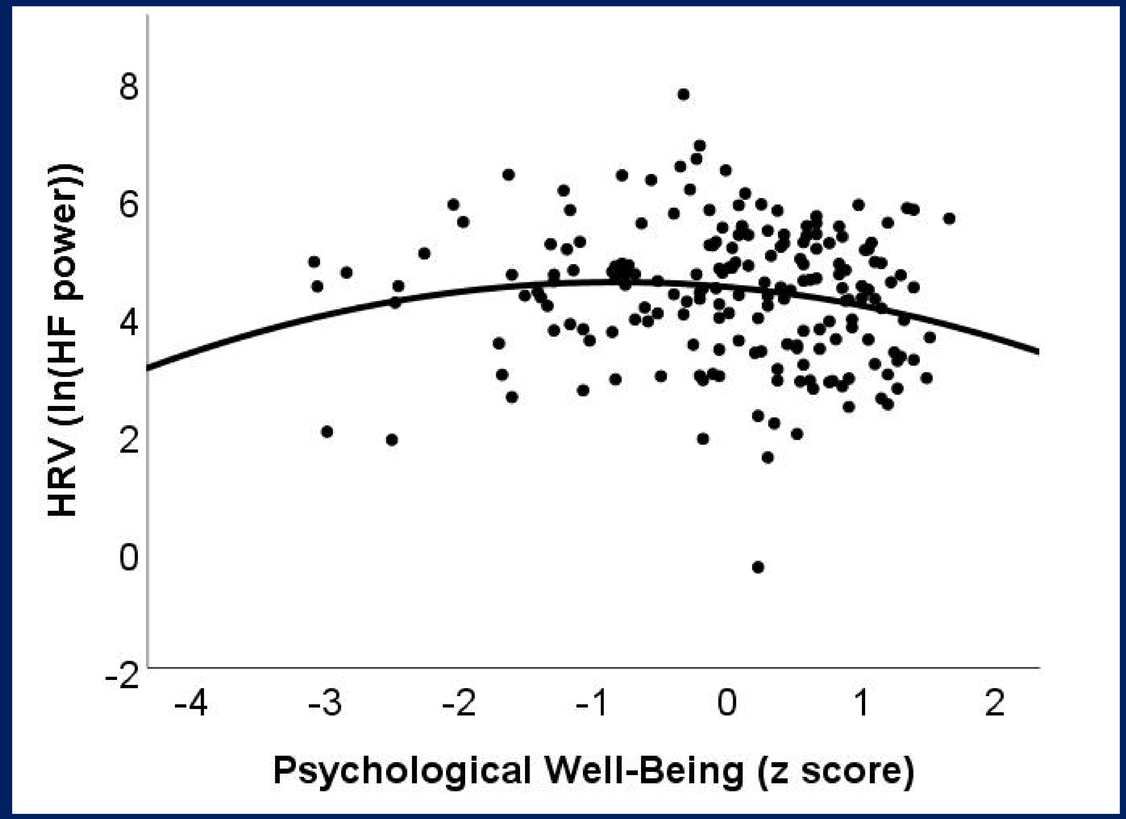
Heart Rate Variability (HRV):
Ten-minute ECGs recorded using a three–electrode arrangement at baseline.

Questionnaire with Interviewer:
Self–acceptance
Positive relationships
Autonomy
Competence
Purpose
Personal growth
from the Scales of Psychological Well-Being

Descriptives (N=191)					
	Measure	Mean	SD	Min	Max
Psychological Well-Being	SPWB mean item score (range: 1-6)	5.09	0.49	3.57	5.90
Heart Rate Variability	ln(HF power)	4.36	1.16	-0.29	7.75
Age	Years	61.72	6.37	50	76
Cardiovascular Fitness	METs	7.35	1.58	3.24	10.39
Education	Years	16.69	2.23	12	22
Ethnicity	-	99.5% Caucasian	-	-	-

At baseline, participants completed physical health measurements including a VO2 max assessment and ECG, as well as demographic information. Psychological Well-Being was operationalized as the mean across baseline and follow-up interviews. Most of the variance associated with Psychological Well-Being was determined to be trait level variance.

There was a quadratic effect of Psychological Well-Being on HRV.



Data analysis was performed in SPSS (version 26).

RESULTS:

Heart Rate Variability			
Model 1			
	β	CI	p
Psychological Well-Being	-0.08	[-0.52–0.15]	.28
Model 2			
Psychological Well-Being	-0.10	[-0.57–0.096]	.16
Age	-0.002	[-0.03–0.03]	.98
Cardiovascular Fitness	0.30	[0.12–0.33]	<.001
Model 3			
Psychological Well-Being	-0.17	[-0.40–0.001]	.05
Psychological Well-Being^2	-0.16	[-0.24–0.01]	.06

Results from a hierarchical linear regression indicated no predictive ability of Psychological Well-Being on HRV, even after controlling for Cardiovascular Fitness and Age. However, when we introduced a quadratic Psychological Well-Being term, there was a curvilinear effect of Psychological Well-Being on HRV. Cardiovascular fitness was a significant predictor of HRV.

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