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## Heart coherence: a new tool in the management of stress on professionals and family caregivers of patients with dementia.

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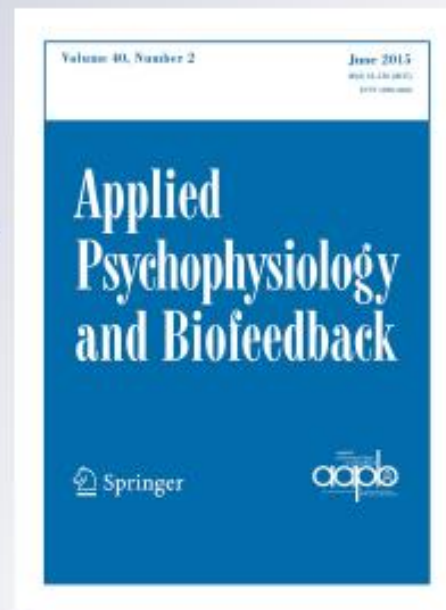
*Heart Coherence: A New Tool in the  
Management of Stress on Professionals  
and Family Caregivers of Patients with  
Dementia*

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# Index

- Introduction
- Objectives
- Method
- Results
- Discussion/Conclusions



# Introduction

We describe a **stress management intervention** intended to reduce the damage and stress impact on the heart physiology and function of a group of caregivers (professional and non-professional) who work with patients with **dementia**.



# Introduction

Recent advances in neuroscience suggest the possibility of reprogramming and changing behavior patterns through thought modification techniques that extend beyond the paradigm of cognitive psychology.

Open Journal of Social Sciences  
2013, Vol.1, No.6, 32-39  
Published Online November 2013 in SciRes (<http://www.scirp.org/journal/ojs>)

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Research  
<http://dx.doi.org/10.4236/ojs.2013.16007>

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## Personality and Heart Rate Variability: Exploring Pathways from Personality to Cardiac Coherence and Health

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## New Hope for Correctional Officers: An Innovative Program for Reducing Stress and Health Risks

Rollin McCraty · Mike Atkinson · Lee Lipsenthal ·  
Lourdes Arguelles

### COHORT STUDY

## COHERENCE AND HEALTH CARE COST— RCA ACTUARIAL STUDY: A COST-EFFECTIVENESS COHORT STUDY

Woody Bedell, Marietta Kaszkin-Bettag, PhD

## Heart Rhythm Coherence Feedback: A New Tool for Stress Reduction, Rehabilitation, and Performance Enhancement

Rollin McCraty, Ph.D. and Dana Tomasino, B.A.  
HeartMath Research Center, Institute of HeartMath  
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# Caregivers of patients with dementia

As **dementia** is a progressive, disabling and long-term neurodegenerative disease, the risks of being exposed to **chronic stress** situations both professional and caregivers is very high.

Affected professionals speak of **burnout** to define a state of emotional and physical exhaustion caused by the stressful demands of their daily work.

# Caregivers of patients with dementia

Adopting effective techniques of stress management may require improving the emotional and physical state of the caregiver and professional.

Emotional and mental factors play a key role in situations of stress, and maintains that the dimensions of resilience must begin to be taken into account in the study of these groups, as evidenced by recent investigations.

# Heart Coherence

Since the 80s, the **Institute of HeartMath (IHM)** in the U.S. has explored the physiological mechanisms by which the heart communicates with the brain, which are influenced by information processing, perceptions, emotions and health conditions.



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# Heart Coherence

A positive mindset state, called **heart coherence** when it matches a particular heart pattern, is associated with high performance, stress reduction, greater emotional stability and numerous health benefits. Heart coherence can be induced by the individual through **biofeedback techniques** generating states of tranquility and emotional stability that influence health significantly.

# Heart Coherence

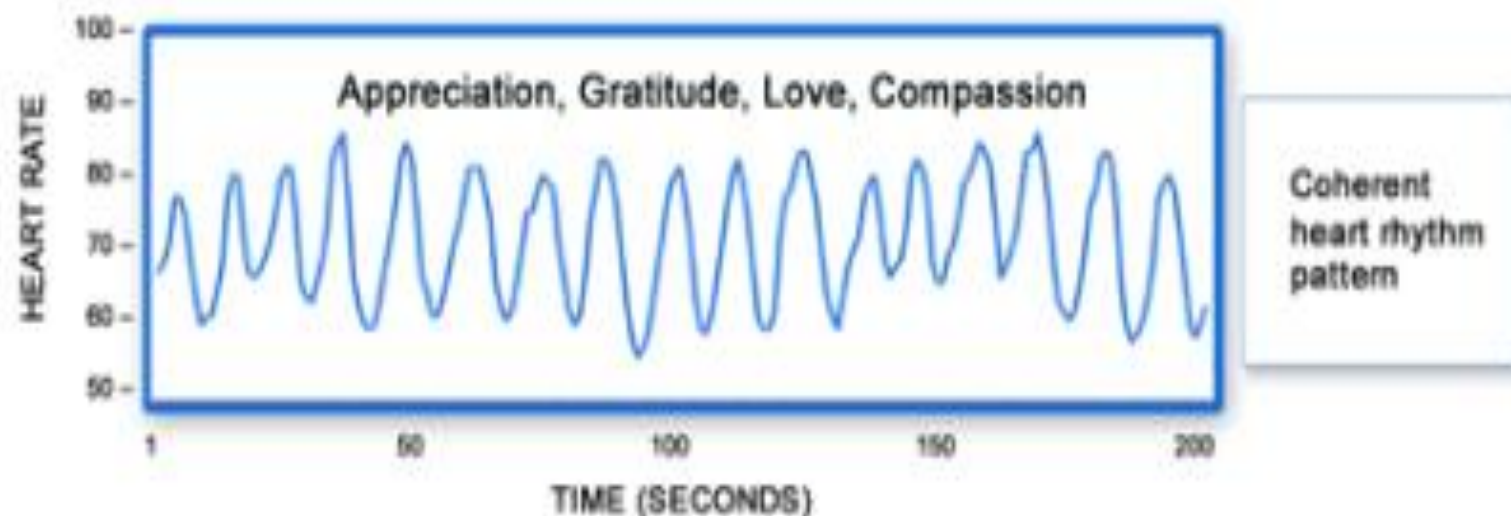
The model shows that changes in beat-to-beat heart rate, also called **heart rate variability** (HRV), reflect the emotional state of human beings.

Heart coherence induction techniques have proven to be effective not only **in stress management** in people with already developed anxiety problems, insomnia, hypertension, etc., but also as a **preventive** measure in high-risk situations.

Stressful "negative" attitudes and emotions, like frustration and anxiety cause chaotic heart rhythms – leading to increased cortisol level and disruptive sleep rhythm.



"Positive" attitudes and emotions, like appreciation, create smooth, coherent heart rhythms – leading to more restful and revitalizing sleep.



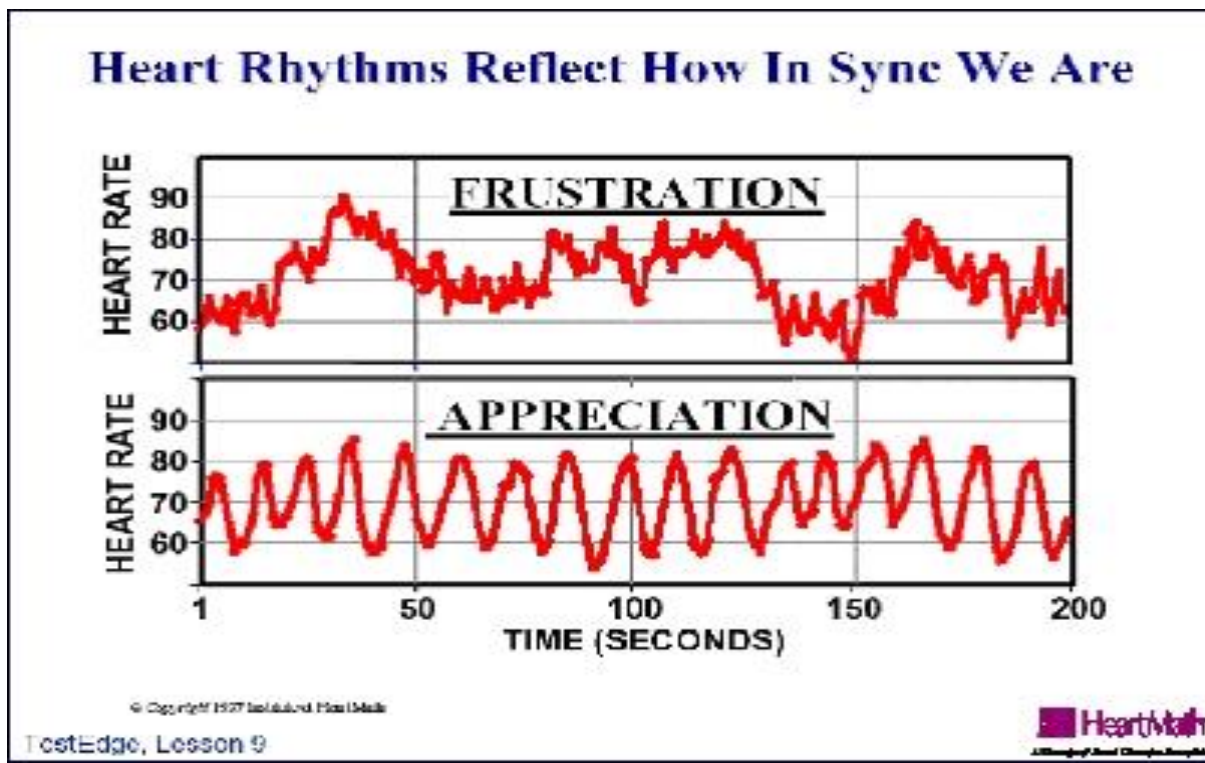
# Heart Coherence

The important aspect of this line of research is that **positive emotional states can be learned**, and these in turn may have a direct influence on the person's physiological state.



# Heart Coherence

The highlight of this treatment is to induce physiological changes by means of positive emotional states, not through mental autosuggestion techniques, but by focusing directly on normalizing the heart rate and perceiving actual effects.



# Objective

The main objective of this work is to describe a **stress management intervention** based on **heart coherence**, applied on a group of nursing professionals and family caregivers of elderly patients with **dementia**.

# Method

- Descriptive and multicenter trial with a quasi-experimental study of repeated measures.
- **Sample:** 72 caregivers of patients with dementia (42 professional and 29 non-professional caregivers) who had **high scores** in heart stress and burden tests.

# Instruments.

*Professional caregivers:* The **Maslach Burnout Inventory (MBI)**. Three subscales: Emotional exhaustion, Depersonalization and Personal accomplishment at work.

*Family caregivers:* **Zarit Burden Inventory**. Scores are summed to give a score between 0 and 88. The most accepted cutoff points are less than 46, “No overload,” with 47-55 being “Light overload” and items involving more than 56 points being a “Greater burden.”

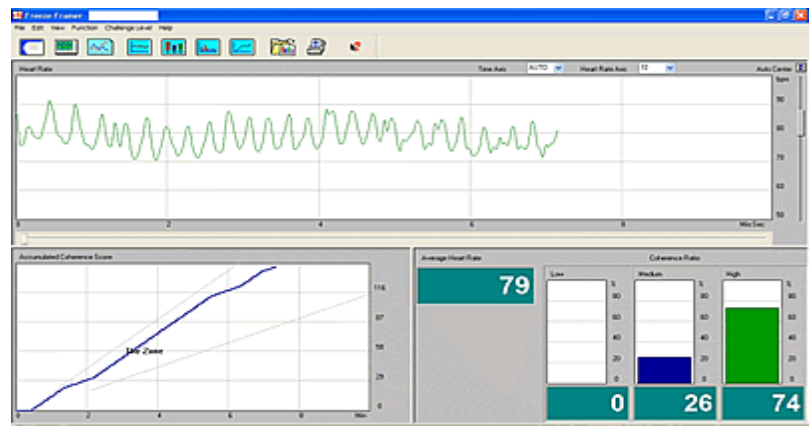


# Heart Coherence training

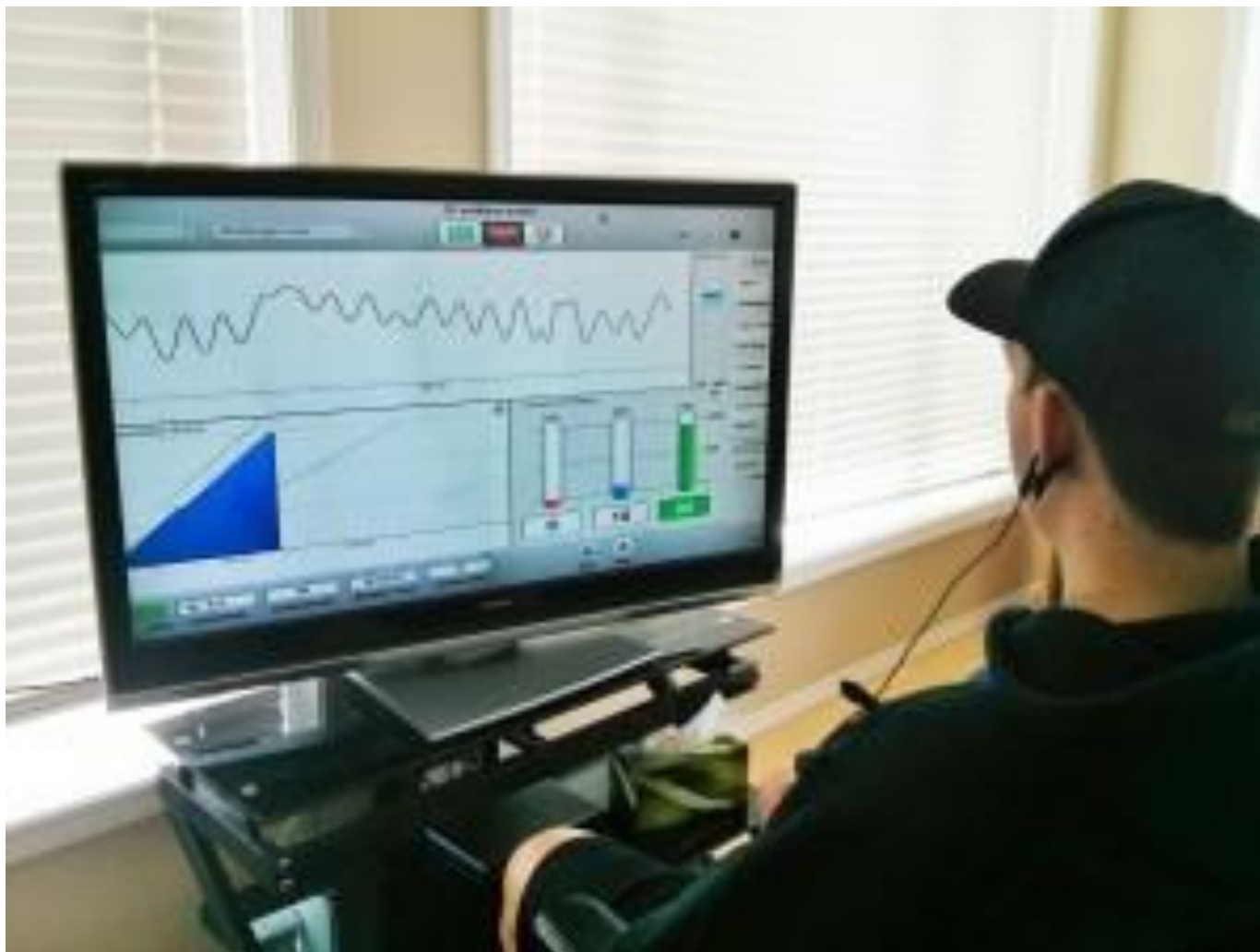
- Portable recording units: heart coherence PSR<sup>®</sup>
- Professional emWave<sup>®</sup> PC software.
- Three levels of heart coherence: high, medium and low. The objective is to have high levels of heart coherence.



Heartmath / <http://www.heartmath.org/>



# Procedure



# Procedure

The heart coherence training was conducted in **workshops for groups** of ten people, without differentiating between professional and family caregivers. Three months.

Three measures (stress test & heart coherence variable) was taken: baseline (0), at the end of the workshops (1) and three months later (2).

# Results

**Table 1** Socio-demographic variables and others

	Professionals (n = 42)	Family caregivers (n = 32)
Age (M)	42.7	59.2
Gender	83 % Females	86 % Females
Education level		
Illiterate	0 %	9 %
Primary education	12 %	47 %
Secondary education	75 %	24 %
Universitary education	13 %	20 %
Years of care performance (M)	11.7	9.8
Medical history	42 % Muscular problems	52 % Sleep problems
	27 % Sleep problems	42 % Anxiety
	21 % HTA	37 % Muscular p.
	12 % Anxiety	27 % HTA
	6 % DM	19 % DM
	3 % Depression	17 % Osteoarthritis
		13 % Depression
Drug use	59 % Analgesics	72 % Analgesics
	37 % Anxiolytics	64 % Hypnotics
		51 % Anxiolytics
	18 % Antihypertensive	24 % Antihypertensive
		11 % Antidepressants
FAST patients		
FAST 3/4	21 %	9 %
FAST 5/6	32 %	59 %
FAST 7/8	47 %	32 %
Years evolution dementia patients (M)		9.3

# 0. Set baseline

## *Professionals caregivers. MBI:*

Emotional Exhaustion subscale, 37.2% had upper levels of burden and 47.6% had average levels;

Depersonalization subscale, 21.8% had high levels and 59.4% low;

Personal accomplishment at work subscale, 26.6% had high levels, 38.6% low and 34.8% average.

# 0. Set baseline

*Family caregivers.* The Zarit Burden Inventory results indicated that 69.8% of family caregivers had high load versus 14.7% presenting low load.

## 0. Set baseline

- Heart Coherence all subjects. 58.7% of all participants ( $n = 71$ ) reported a pattern of low heart coherence, 32.3% a pattern of medium coherence, and 9% a pattern of high heart coherence.
- There were **no significant** differences between the baseline measure and the second measure took after they were asked to relax ( $F = .236$ ,  $p = .15$ ).

## Set baseline

For the group of **professionals** (n=42), a correlational study of heart coherence levels and scores on the three subscales of the Maslach was performed.

The results indicated a **significant correlation** between a low level of heart coherence on the Depletion subscale ( $r = .689$ ,  $p = .02$ ) and Depersonalization ( $r = 0.568$ ,  $p < .05$ ), but not on Development ( $r = .425$ ,  $p = .08$ ).



# Set baseline

- For the group of **family caregivers** (n=29), the same correlational study found a **positive correlation** between low levels of heart coherence and high levels of burden ( $r = .654$ ,  $p = .01$ ).

# (2) After six months of training

Appl Psychophysiol Biofeedback (2015) 40:75–83

81

**Table 2** Ratios and significance test in the questionnaires and heart coherence in the three stages

	Baseline	3 months	6 months	<i>p</i>
Professionals (n = 42)				
Maslach				
Emotional	37.2 % High	19.2 % High	21.3 % High	.00*
Exhaustion	21.8 % High	12.13 % High	11.7 % High	
Depersonalization	26.6 % High	42.8 % High	44.1 % High	
Performing				
Family caregivers (n = 29)				
Zarit				
High burden	69.8 %	58.7 %	54.7 %	.02*
Medium burden	15.5 %	30.1 %	26.4 %	.01*
Low burden	14.7 %	11.2 %	18.9 %	.03*
Heart coherence (n = 71)				
High	9 %	86.4 %	81.7 %	.03*
Medium	32.3 %	20.8 %	11.7 %	.03*
Low	58.7 %	7.2 %	7.4 %	.02*

\* *p* < .05 significance

# Discussion

The **main objective** of this work was to reduce the states of stress and overload through measures of psychological control of heart coherence in a group of professionals and caregivers of people with dementia. The results **suggest that the intervention achieved the main objective.**

# Discussion

The results are in line with the existing literature on **heart coherence as effective method for reducing stress** and assisting in the handling and management of overload situations such as those frequently encountered in caregiving.

The results seem to suggest that **heart coherence techniques** have been proven easy to apply and an effective tool for health professionals and caregivers of people with dementia.

# Conclusions

We conclude that training in techniques of heart coherence and positive psychology had effective results on the stress management of the participant caregivers.

This was a simple, inexpensive technique with lasting results.

To our knowledge this is the first research in Spain studying the application of heart coherence techniques to caregivers of people with dementia.



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