

# Short-Term Changes in Self-Reported Health and Associations with Daily Experience

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## OBJECTIVES

1. Do domains of perceived health fluctuate differentially across days?
2. To what extent are daily fluctuations in perceived health associated with daily events and experiences?

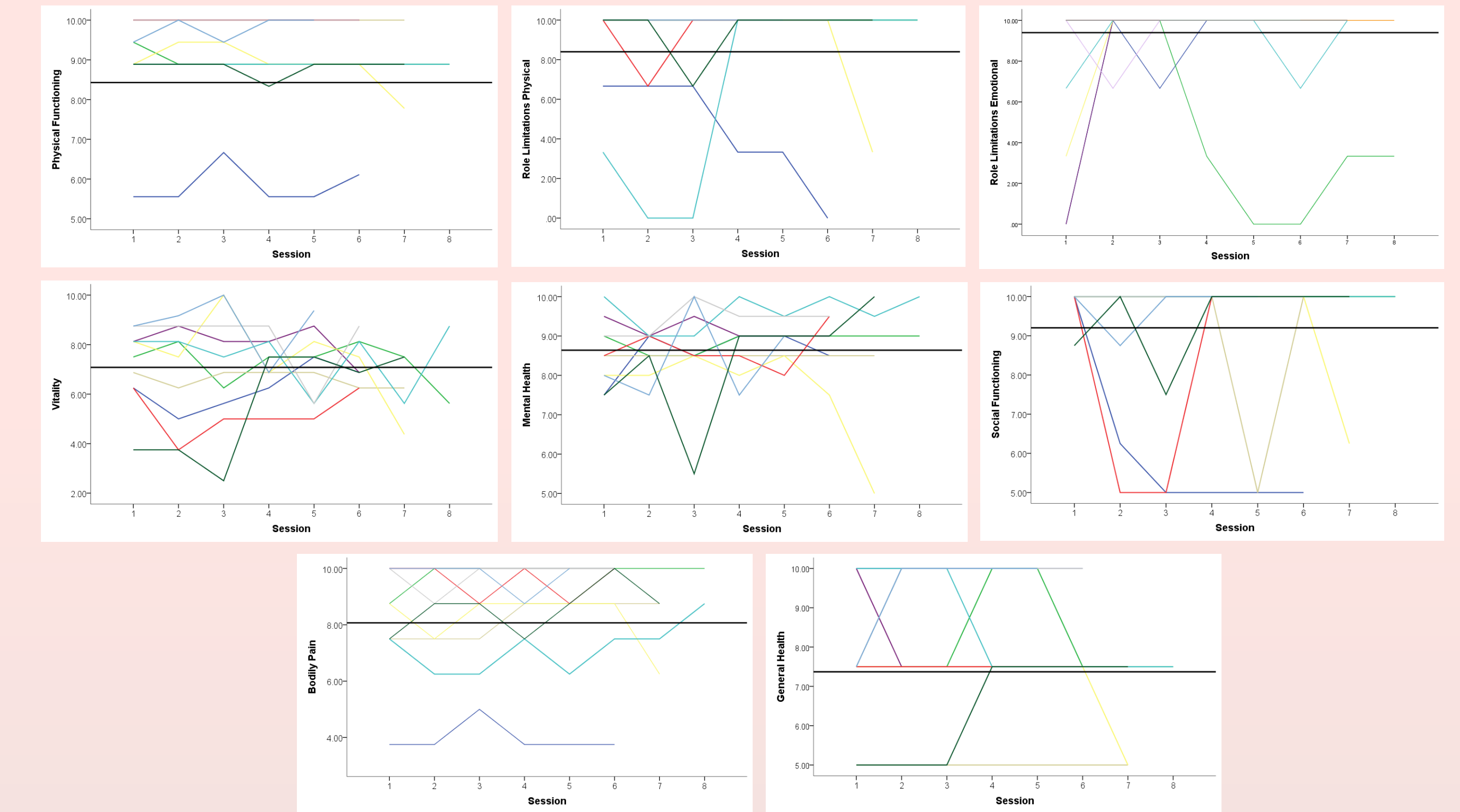
## BACKGROUND

### Self-Reported Health

- Health is a multifaceted concept which encompasses physical, mental and social elements. However, it is often assessed with a single item on symptoms, pain or 'overall state of health'.
- Many aspects of self-reported health show changes over short period of time (Ghisletta *et al.*, 2002), related to affect (Charles & Almeida, 2006), stress reactivity (Piazza *et al.*, 2013), well-being (Schneider *et al.*, 2012) and functioning (Hutchings *et al.*, 2007).
- The role of affect in perceived health has been extensively studied and suggests lower morbidity, physical symptoms and pain with higher trait positive affect (Cohen & Pressman, 2006). Positive affect is associated positively with SF-36 subscales, and vice-versa for negative affect (Spindler *et al.*, 2009).
- Assessed health with modified daily SF-36. Subscales are:
  - Physical functioning, Role limitations due to physical health, Role limitations due to emotional problems, Vitality, Mental health, Social functioning, Bodily pain, General health
- Broader reports on daily events and experiences may be useful information to physicians to inform treatment planning and monitor health changes over time. Frequent assessment of health may help identification of important antecedents to and consequences of change.

**Table 1. Means and variance components for daily SF-36 health subscales for the full sample (N = 118). All scores are on a 0-10 scale where 10 represents a better health state with no symptoms**

Subscale	Mean	SD <sub>WP</sub>	SD <sub>BP</sub>	% WP Variance
Physical Functioning	8.43	0.75	2.15	10.9
Role Limitations Physical	8.42	1.94	2.49	37.7
Role Limitations Emotional	9.40	1.55	1.23	61.7
Vitality	6.79	1.13	1.86	26.7
Mental Health	8.64	0.83	0.93	44.4
Social Functioning	9.20	1.20	1.37	43.2
Bodily Pain	8.05	0.97	2.00	19.1
General Health	7.33	1.12	1.80	27.9



**Figure 1. Daily trajectories of SF-36 subscale scores across 7 days.**

**Table 2. Results from multilevel modeling on the within-person and between-person associations of daily physical activity, stress and affect with SF-36 health.**

	Physical Functioning			Role Limitations Physical			Role Limitations Emotional			Vitality			Mental Health			Social Functioning			Bodily Pain			General Health			
	WP	BP	PseudoR <sup>2</sup> WP / BP	WP	BP	Pseudo R <sup>2</sup> WP / BP	WP	BP	Pseudo R <sup>2</sup> WP / BP	WP	BP	Pseudo R <sup>2</sup> WP/BP	WP	BP	PseudoR <sup>2</sup> WP / BP	WP	BP	PseudoR <sup>2</sup> WP / BP	WP	BP	PseudoR <sup>2</sup> WP / BP	WP	BP	PseudoR <sup>2</sup> WP / BP	
<b>Physical Activity</b>																									
Day (yes/no)	0.17	2.85*	- / 0.07	-0.38	3.22 <sup>†</sup>	- / -	-0.24	1.73	- / -	0.08	2.50 <sup>†</sup>	- / -	-0.06	1.18 <sup>†</sup>	- / -	-0.04	1.73	- / -	0.05	2.01 <sup>†</sup>	- / -	0.14	1.99 <sup>†</sup>	- / -	
# Activities	0.07	0.90**	- / 0.07	-0.11	1.04*	- / 0.09	0.06	0.54*	- / 0.05	0.03	0.80**	- / 0.09	0.11*	0.27 <sup>†</sup>	0.06 / -	0.08	0.58*	- / 0.09	0.05	0.63*	- / 0.04	0.07	0.67*	- / 0.06	
Minutes	0.07*	0.47	0.29 / -	0.06	-0.01	- / -	0.15 <sup>†</sup>	0.02	- / -	0.07	0.09	- / -	0.10*	-0.04	0.01 / -	0.03	0.18	- / -	0.08	-0.09	- / -	0.08	0.004	- / -	
<b>Stress</b>																									
Day (yes/no)	-0.02	0.01	- / -	-0.33	-1.43 <sup>†</sup>	- / -	-0.02	-1.04**	- / 0.07	-0.10	-1.89***	- / 0.11	-0.26***	-0.94***	0.08 / 0.12	0.05	0.55	- / -	-0.01	-1.22*	- / 0.04	-0.20	-1.05 <sup>†</sup>	- / -	
# Stressors	-0.01	-0.05	- / -	-0.14	-0.75*	- / 0.05	-0.01	-0.59**	- / 0.11	-0.10	-1.01***	- / 0.15	-0.14**	-0.59***	0.10 / 0.20	-0.01	-0.32 <sup>†</sup>	- / -	0.02	-0.62*	- / 0.04	-0.06	-0.48 <sup>†</sup>	- / -	
Severity	-0.08	-0.76*	- / 0.22	-0.42***	-0.98***	-0.18 / -0.09	-0.27	-0.48*	- / 0.18	-0.35*	-0.97***	-0.14 / 0.15	-0.36***	-0.74***	0.05 / 0.19	-0.26	-0.66***	- / 0.27	0.001	-0.99***	- / 0.16	0.03	-0.92***	- / 0.11	
<b>Affect</b>																									
Positive	0.42***	1.00**	0.35 / 0.05	0.69*	1.28**	0.16 / 0.15	0.92***	0.66*	0.23 / -0.04	1.41***	1.82***	0.33 / 0.46	0.73***	0.61***	0.21 / 0.18	0.77***	0.74**	0.38 / 0.07	0.65***	1.06***	0.19 / 0.10	0.82***	1.41***	0.22 / 0.30	
Negative	-0.25 <sup>†</sup>	-1.52*	- / 0.06	-0.54	-2.55*	- / 0.13	-1.10***	-2.02**	0.17 / 0.29	-1.14***	-2.13***	0.15 / 0.15	-1.16***	-2.00***	0.28 / 0.55	-0.62*	-1.29*	0.08 / 0.08	-0.31*	-2.23**	0.03 / 0.14	-0.72***	-1.91***	0.08 / 0.12	

## METHODS

### Sample

- Patient sample aged 50 and older, N = 118
- Mean age = 66.28 years, 55% female

### Design & Measurement

- Online baseline and daily surveys for 7 consecutive days

Daily Experiences	Measure
Health	SF-36 Health Survey (Hays, Sherbourne & Mazel, 1993)
Physical Activity	Type and duration of activities
Stress	DISE (Almeida, Wethington, & Kessler, 2002)
Affect	PANAS (Watson, Clark, & Tellegen, 1998)

- Multilevel models to examine within-person changes, between-person differences and functional associations

## RESULTS

### Table 1: Variability Across SF-36 Subscales

- All domains of self-reported health showed fluctuations across days
- Most day-level changes in mental health domains: **role limitations emotional, mental health, social functioning**
- Fewest day-level changes in physical health domains: **physical functioning, bodily pain**

### Figure 1: Raw Daily Trajectories

- Within-person fluctuations from day to day around group mean

### Table 2: Links Between Reported Health and Daily Experiences

- **Within-person:** Improved **physical functioning** and **mental health** with physical activity
  - Reduced **role limitations physical, vitality** and **mental health** with stress
  - Better health scores for all SF-36 subscales were related with higher PA and lower NA
- **Between-person:** Better health scores across all subscales for those who tend to have higher levels of physical activity and PA
  - Lower scores across all subscales for individuals who tend to have higher levels of stress and NA

## DISCUSSION

- The daily version of the SF-36 shows day-level fluctuations in all health domains.
- Perceived health changes on a short time scale and is related to daily experiences, but this depends on how health is conceptualized.
- The number of physical activities and the severity of stressors were most informative predictors of their categories of daily experiences.
- More between-person effects suggests a more cumulative effect of daily experiences on health over time than on a day-to-day basis.
  - Better health scores for individuals who tended to have higher levels of physical activity and PA.
  - Lower health scores for individuals who tended to have higher levels of stress and NA.
- Encouragement by physicians to increase physical activity and cope with stress and negative mood may improve patient health outcomes.