



Step Count and Psychological Health in Older Adults

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Background & Objectives

- Physical activity is strongly linked to positive neurobehavioral outcomes in aging
- Age-related declines in psychological health may be a potential prodrome of and/or risk factor for neurodegenerative diseases
- Physical activity decreases in typically aging older adults, however the relationship between aging declines in physical activity and psychological health is not well understood
- Aim:** To understand the relationship between objectively measured physical activity and psychological functioning in functionally normal older adults

Methods

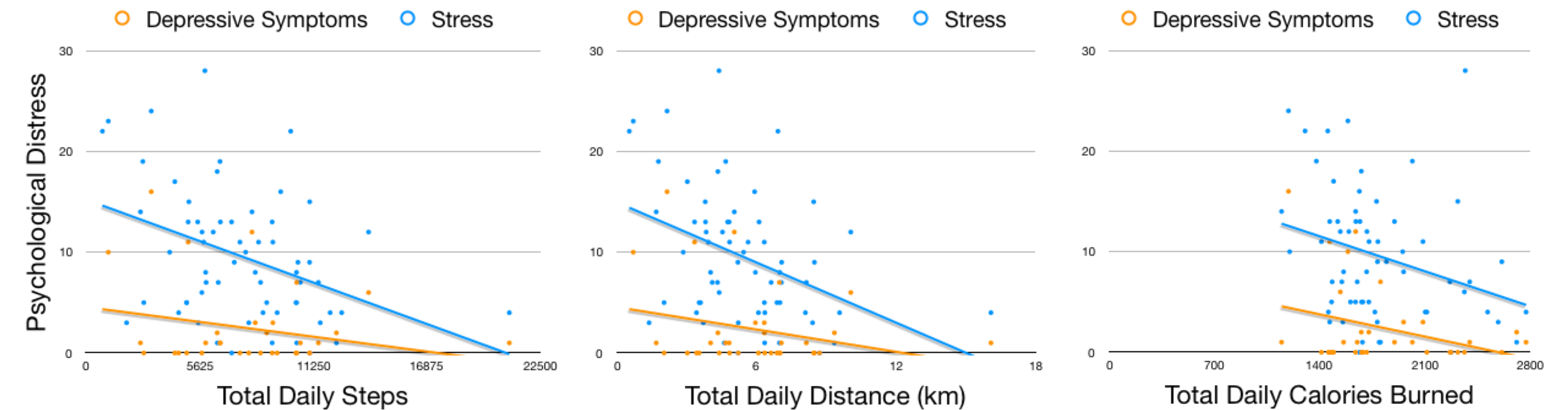


Participants wore a Fitbit Flex 2 device for all waking hours (≥ 14 days), blinded to activity levels

Clinical and Demographic Characteristics of Older Adults Mean (SD)	
Demographics	
N	62
Age	73.8 (7.3)
Gender	69% female
Education	17.4 (1.8)
CDR	0
BMI	25.1 (4.4)
Physical Activity	
Total Average Daily Steps	7724.1 (3464.9)
Total Average Daily Distance (km)	5.41 (2.6)
Total Average Calories Burned	1795.5 (380.6)
Psychological Measures	
Perceived Stress Scale (PSS), median (IQR)	8.5 (4, 13)
Geriatric Depression Scale (GDS), median (IQR)	1 (0, 2.25)
Cognitive Measures	
Mini-Mental State Exam (MMSE), median (IQR)	29 (28.5, 30)

Results

- Adjusting for age and sex, *greater average daily steps, distance, and calories burned were associated with lower perceived stress* (β range= -0.81 to -0.42, $ps < 0.01$), but not depressive symptoms (β range= -0.11 to -0.09, $ps > 0.30$).

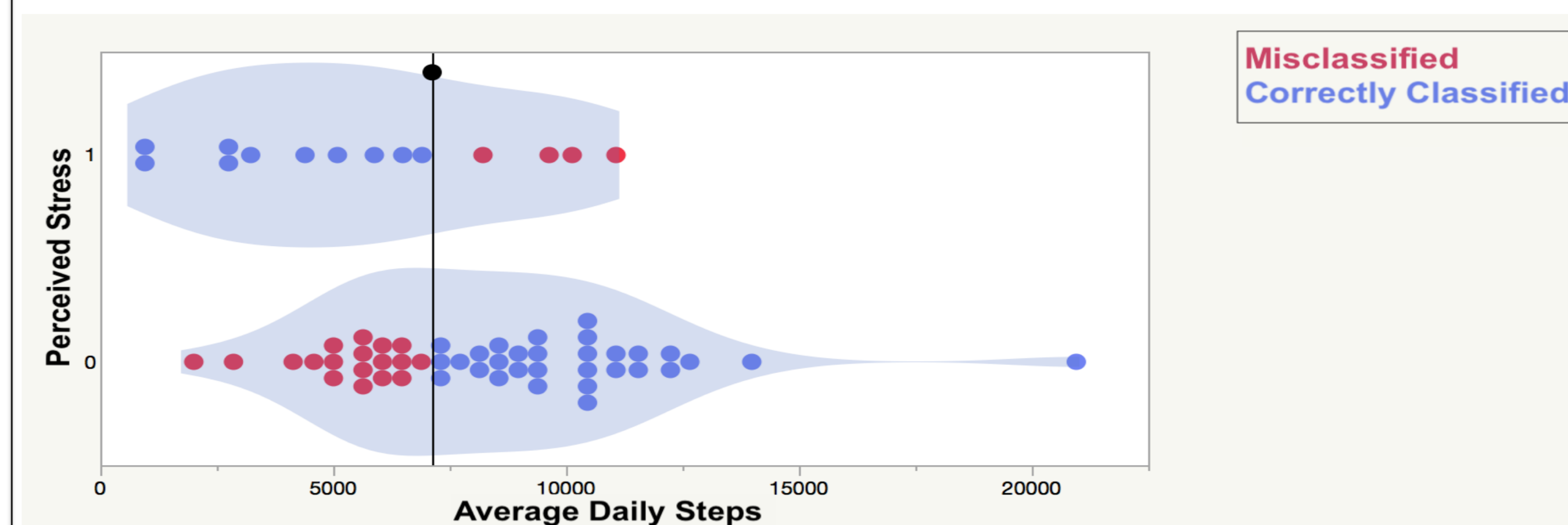


- The relationship between Fitbit measures and perceived stress remained significant even after adjusting for BMI, heart rate, and systolic blood pressure (β range= -0.93 to -0.39, $ps < 0.01$).

We classified older adults with PSS $\geq 75^{\text{th}}$ percentile as “high stress.”

7,125 daily steps optimally differentiated between high vs. low stress individuals

Accurate classification rate = 64.52%
Relative risk = 3.02, 95% CI = 1.07, 8.64



Conclusions

- Greater physical activity was strongly associated with lower perceived stress, but demonstrated weaker associations with mood.
- Engaging in $\geq 7,125$ daily steps may be protective for age-related psychological functioning, an early indicator of brain changes
- Fitbit may be a useful intervention to encourage movement and psychological health in older adults
- Disentangling activity characteristics (e.g. non-exercise movement vs. deliberate exercise) will be important to understanding these relationships