Predictors of Energy and Fatigue in graduate health sciences students

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ABSTRACT

Background: Until recently many researchers have examined energy and fatigue as opposite ends of a bipolar spectrum rather than two separate unipolar moods. Studies have also focused on a single variable to study these mood states rather than examining multiple variables simultaneously. Therefore, the purpose of this study was to identify factors predicting feelings of energy and fatigue while simultaneously examining multiple domains related to these mood states in graduate health sciences students.

Methods: Seventy-seven subjects were recruited from a Physician Assistant, Physical Therapy and Occupational Therapy program at a small school in Northern New York. Subjects completed a series of surveys to measure mood, diet, mental work load intensity on school days and non-school days, and physical activity. Subjects also completed the Trail-making Test Part B task on an iPad and their Resting Metabolic Rate (RMR) and muscle oxygen consumption mVO2 was measured. A backwards linear regression was used to determine the relationship between energy, fatigue and multiple variables.

Results: The predictor variables accounted for 46.1% and 22.7% of the variance in fatigue and energy, respectively. More fatigue was associated with worse sleep quality, more time spent sitting and higher perceived intensity of mental workload on non-school days. More energy was associated with better sleep quality, higher muscle oxygen saturation, lower RMR, and faster psychomotor performance.

Conclusion: The results of this study indicate that energy and fatigue are separate constructs that are predicted with different accuracy by different variables. Our results indicate that small lifestyle changes may be necessary to improve feelings of fatigue but comprehensive interventions may be necessary to improve feelings of energy. This study provides new insight into a multi-domain approach to predicting energy and fatigue.

DOCX

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PROTOCOL STATUS

Working

We use this protocol in our group and it is working

1   Obtain written informed consent

Measure height using a standard stadiometer

2

Measure weight and body composition using the Tanita TBF-410-GS

3

Complete surveys

4 Complete the following surveys
Pittsburgh Sleep Quality Inventory
O'Connor Trait and State Mental and Physical Fatigue and Energy Survey
Rapid Eating Assessment for Participants-Short Form
Caffeine consumption survey
International Physical Activity Questionnaire-Short Form
Profile of Mood Survey- Short Form

Complete mental energy test

5 Complete the Trailmaking Task-B

Measure Resting Metabolic Rate (RMR) and muscle oxygen saturation

6 Fit participants with the mask to measure RMR using the Cosmed Fitmate Pro
Put the sleeve of the BSX Insight NIRS on the right lateral gastrocnemius
Seat participants for 5 minutes
Collect data for the next 10 minutes