

Ecological Momentary Assessment of Daily Variation in Post Traumatic Stress Symptoms

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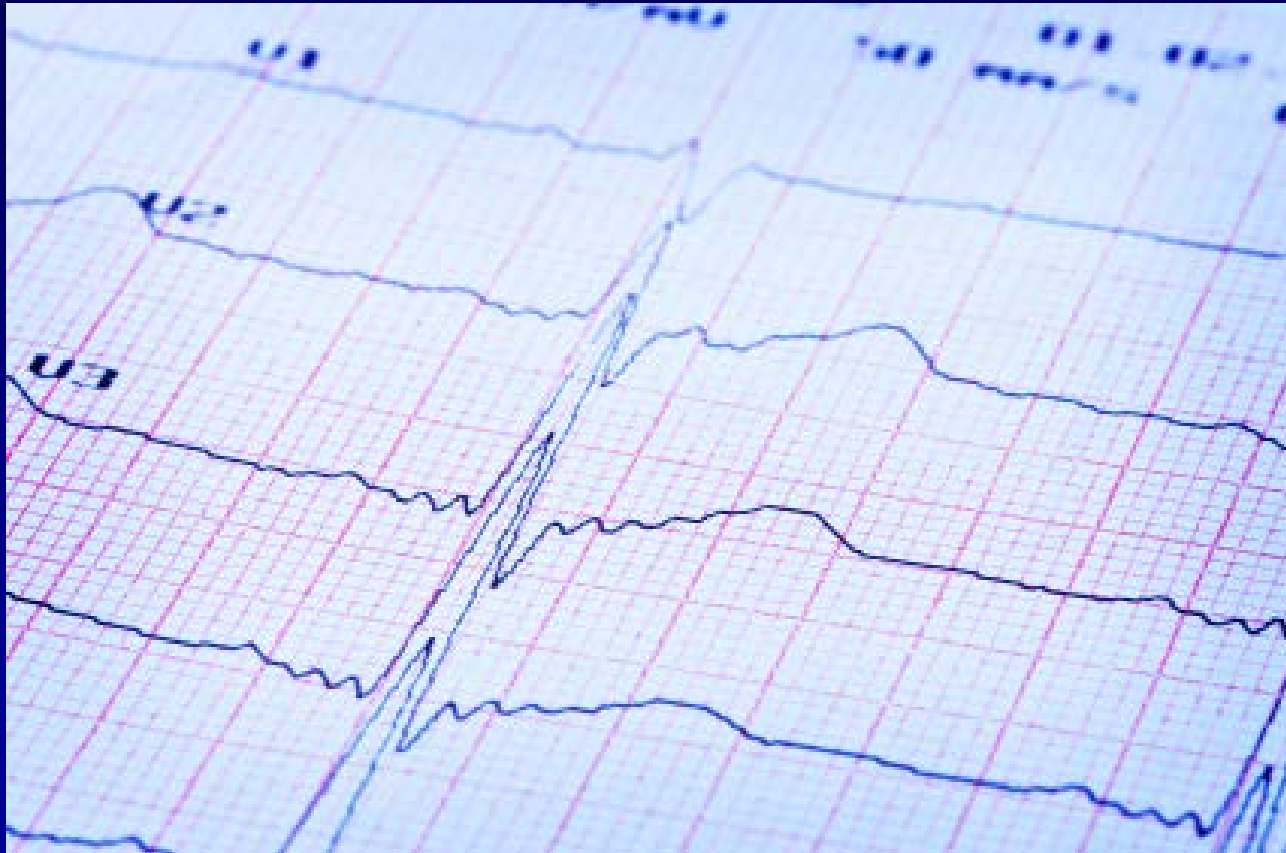
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The authors have no conflicts of interest to report

Post Traumatic Stress Symptoms (PTSS)

- 50-70% exposed to traumatic event¹
- PTSS may develop after a traumatic event
- PTSS sufficiently high in number, severity, and duration can be part of diagnostic criteria for post traumatic stress disorder (PTSD)
- Cause distress and impairment in social and occupational functioning

Is There Variation in Symptoms?



Daily Diary Study



- Examined relationship between PTSS and day of the week in a military population with and without PTSD
- PTSS measured four times per day for 15 consecutive days

Participants

- Recruited from behavioral health clinic
 - *Inclusion*: ≥ 18 years, fluent in English, current or former military service member
 - *Exclusion*: suicidal or homicidal behavior in past 3 months or diagnosis or care for a psychotic disorder
- $N = 50$ adult volunteer subjects, 40 provided complete data

Screening for Enrollment

- Screened for 26 symptoms that are common after a stressful experience
 - 18 PTSD items (PCL-5)⁵
 - 6 depression items (PHQ-9)⁶
 - 2 generalized anxiety items (GAD-7)⁷
 - 0-10 response format (range 0-260)
 - Score ≥ 40 allowed to enroll



⁵Weathers et al., 2013

⁶Kroenke et al., 2001

⁷Spitzer et al., 2006

Assessment of PTSD

- Probable PTSD assessed with PCL-5
 - 20 items; 0-4 response format (0-80 range)
 - Items scored ≥ 2 (*Moderately*) were endorsed
 - DSM criteria 1 B, 1 C, 2 D, and 2 E, and total score ≥ 38
 - All subjects had a criterion A traumatic event

Traditional Measure of PTSS

- PTSD Checklist for DSM-5 (PCL-5)²
- Retrospective recall of symptoms “...in the past month”

PCL-5

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4

Daily Assessment of PTSS

- Daily assessments used 18 of 20 PCL-5 items
- Response choices 0-10 (0-180 range)

Daily Diary I

Please complete Saturday, March 18 between 1400 and 1600
Day of Week Date Time Start Time End

1. Below is a list of problems that people sometimes have in response to very stressful experiences. Please read each problem carefully and then circle one of the numbers on the 0-10 scale where 0 means “Not At All” and 10 means “Extremely” to indicate how much you have been bothered by that problem **since you AWAKENED.**

	Not At All ⇓	Moderately ⇓	Extremely ⇓								
a. Repeated, disturbing, and unwanted memories of a stressful experience	0	1	2	3	4	5	6	7	8	9	10

Ecological Momentary Assessment (EMA)

- Repeated sampling of current experiences in the typical daily routine, in the natural environment^{3,4}
 - Maximizes ecological validity
 - High reliability of data
 - Reduces retrospective recall bias
 - Allows examination of contextual influences on behavior and temporal relationships of variables

Data Analyses

- Linear mixed models to examine day of week variation in PTSS
 - DD assessments (level 1) nested within subjects (level 2)
- Day of week analyses
 - Across 7 days
 - Weekends vs. weekdays

Demographics

- Gender: 52.5% male
- Age: mean 35.9 (range 19-59)
- Race: 82.5% Caucasian
- Education: 60.0% some college, technical school, or higher

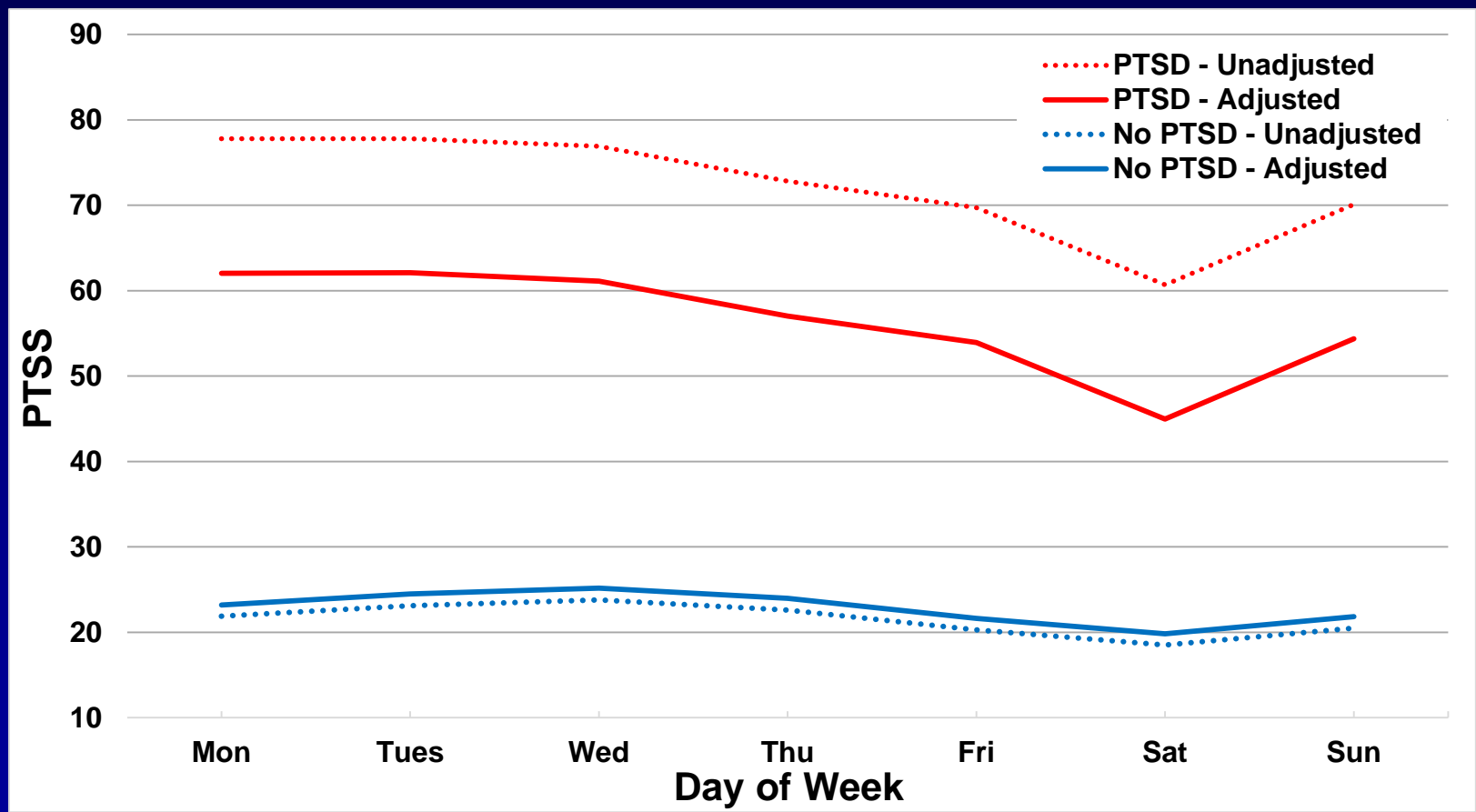
PTSD Group and PTSS Scores

- PTSD group
 - 19 (47.5%) subjects had PTSD
 - 21 (52.5%) did not have PTSD
- Mean PTSS scores
 - All subjects: 44.5 ($SD = 39.5$)
 - PTSD group: 68.4 ($SD = 39.5$)
 - No PTSD group: 21.3 ($SD = 21.6$)

Mixed Models of PTSS Variation by Day of Week

- PTSD group by day of week interaction?
 - 7-day variable, $p = .059$
 - Weekends vs. weekdays, $p = .024$
- Subsequent models stratified by PTSD group
 - Among those with PTSD, PTSS varied across 7 days, $p < .001$
 - Among those without PTSD, PTSS did not vary across the 7 days, $p = .35$

Mixed Models of PTSS Variation by Day of Week



PTSS Variation by Day of Week

- PTSD group
 - PTSS lower on Saturday than Monday ($p < .001$), Tuesday ($p < .001$), Wednesday ($p < .001$), or Thursday ($p = .020$)
 - PTSS lower on weekends than weekdays ($p < .001$)
- No PTSD group
 - PTSS were not different between 7 days or weekends vs. weekdays

Findings and Implications

- Study is unique in reporting variation in PTSS between days of the week for those with PTSD
- Daily assessment of PTSS may have a role in clinical care
 - Improve symptom communication between patient and clinician
 - Tailor interventions to peak symptom days
 - Repeated assessment may have therapeutic benefit

Limitations and Next Steps

- Limitations:
 - Self-report measures
 - Did not track work schedule
- Next steps:
 - Explore factors that might contribute to variation
 - » Traumatic event cues
 - » Stressful events and work or home
 - » Interpersonal conflicts

Acknowledgements

Carol S. Fullerton, Ph.D.
Jing Wang, Ph.D.
David Krantz, Ph.D.
LTC Gary Wynn, M.D.
Deborah Probe, M.A.

Nicole Dacuyan, B.S.
Mackenzie Franz, B.A.
CDR Russell B. Carr, M.D.
Robert J. Ursano, M.D.

