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## The dynamic interactions of PTSD symptoms in daily life

Talya Greene 

Department of Community Mental Health, University of Haifa, Haifa, Israel; Division of Psychiatry, University College London, London, UK

### ABSTRACT

**Background:** Intensive longitudinal assessments such as experience sampling methodology (ESM)/ecological momentary assessment (EMA) are data collection methods in which participants are prompted to provide data at least once a day over a particular time period on symptoms, emotions, and behaviours, often using mobile technology. In recent years, there has been a rise in ESM/EMA studies in the traumatic stress field (Greene et al., 2018; Chun, 2016; Kleindienst et al., 2017). ESM/EMA approaches enable researchers to ask and answer questions that are not typically possible using traditional methods, such as: How variable is PTSD symptomatology in daily life? Which symptoms and behaviours predict other symptoms and behaviours a few hours later? What is the real-time effect of environmental stressors on mental health? What are the temporal dynamics of symptoms during treatment? (Greene, Gelkopf, Fried, Robinaugh, & Lapid Pickman, 2020; Hoffart, Langkaas, Økstedalen, & Johnson, 2019).

**Objectives:** The objective of the current study was to investigate the dynamic interactions of traumatic symptoms during and after stress exposure using a prospective multi-wave ESM/EMA design.

**Methods:** In this study, 182 Israeli civilians exposed to rocket fire, including 86 with a history of serious mental illness, completed assessments twice daily for 30 days via mobile phone during the Israel-Gaza 2014 conflict (July-August). Three ESM/EMA follow up bursts were conducted 1.5, 3.5, and nearly 6 years later. Respondents completed ESM versions of the PTSD checklist for DSM-5 (PCL-5), the Patient Health Questionnaire – 9 (PHQ-9), and other questions relating to dissociation, perceived threat, social support, and stress exposure. A series of analyses were conducted using R, Mplus and SPSS, including dynamic network analyses, dynamic structural equation models (DSEM), and multilevel mediation analyses.

**Results:** In the peritraumatic phase, dynamic network analyses found that arousal symptoms predicted other PTSD symptoms, as well as negative affect. A multilevel mediation model showed that perceived threat mediated the relationship between stress exposure and traumatic stress symptoms (Lapid Pickman, Greene, & Gelkopf, 2017). In the posttraumatic phase (3.5 year follow up), a DSEM found dynamic associations between PTSD and depression symptoms, with elevations in PTSD symptoms predicting elevations in depression symptoms 12 hours later, but not vice versa.



**Conclusions:** ESM/EMA approaches can provide novel insights into the complex and dynamic interactions of PTSD symptoms in daily life, both those that are part of the core PTSD symptomatology, and also with comorbid phenomena, such as perceived threat, negative affect, and depression.

### ORCID

Talya Greene  <http://orcid.org/0000-0002-3044-2841>

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**CONTACT** Talya Greene  [tgreene@univ.haifa.ac.il](mailto:tgreene@univ.haifa.ac.il)  Department of Community Mental Health, University of Haifa, 199 Aba Houshy Avenue, Mount Carmel, Haifa 3498838, Israel

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