PTSD Symptom Clustering in Survivors of the October 7th Attack: Towards Personalized Treatment

Adar Paz[1], Hadar Bloom[1], Nir Strasberg[1], and Eran Bar-Kalifa[2]

[1]Geha Mental Health Center, Petah Tikva, Israel

[2]Ben-Gurion University, Beer Sheva, Israel

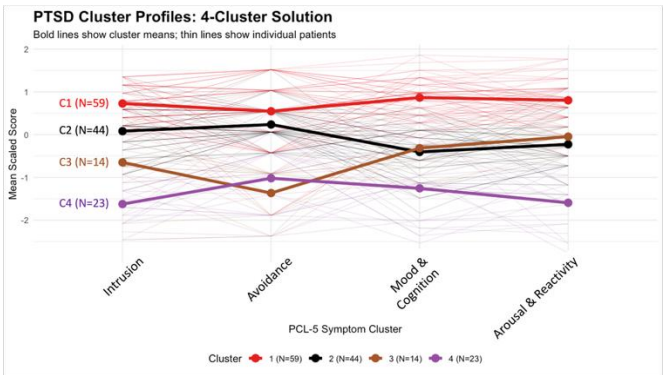
Introduction

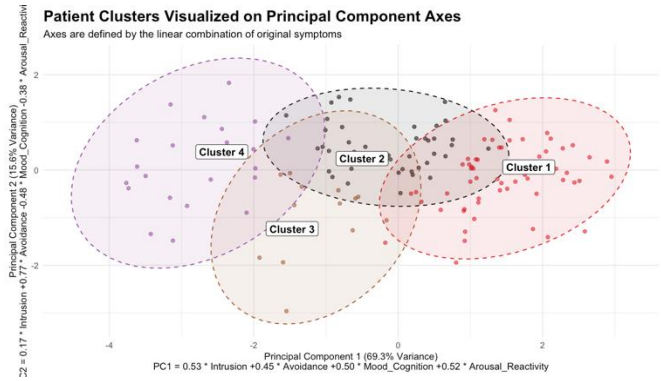
Post-Traumatic Stress Disorder (PTSD) presents heterogeneously, yet standard treatments often follow a uniform approach. With high rates of residual symptoms (41-58%) and treatment dropout (14-32%), there is a clear need for personalized care. This study aimed to identify distinct, data-driven subgroups of PTSD patients based on their symptom profiles to help tailor therapeutic interventions.

Method

We analyzed intake data from N=142 PTSD patients at a specialized trauma clinic. Using scores from the PCL-5, we performed a Principal Component Analysis (PCA) on the four PTSD symptom subscales (Intrusion, Avoidance, Negative Mood/Cognition, Arousal/Reactivity). Subsequently, we used Hierarchical Agglomerative Clustering on the resulting components to group patients into distinct profiles.

Results





Clustering revealed four distinct PTSD profiles:

1. Cluster 1 (N=59): High-Severity.
2. Cluster 2 (N=44): Avoidance-Dominant.
3. Cluster 3 (N=14): Negative Mood/Cognition-Dominant.
4. Cluster 4 (N=23): Low-Severity.

PCA identified two components explaining 84.9% of symptom variance:

1. PC1 (69.3%): Represents overall symptom severity.
2. PC2 (15.6%): Contrasts Avoidance symptoms against Negative Mood/Cognition and Arousal symptoms.

Discussion & Future Directions

Our findings confirm PTSD is not monolithic. The identified clusters provide a framework to tailor treatment. Future work will validate these clusters in larger samples and map specific interventions to each profile, aiming to develop a real-time clinical tool for adaptive therapy.