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**Online supplement**



## Method

### Patient Retention

Individuals who refused to participate in the current study did not differ from participants in terms of gender ($\chi^2$ = .80, df=1, $p$ =.23), length of hospital admission ($t(df = 1082) = .03$, $p$ =.88), injury severity score (ISS ($t(df =1419)= 1.1$, $p$ =.16), or age $t(df =1475) =1.6$, $p$ = .14). At the 3-months follow-up assessment, 152 patients could not be contacted or declined to participate; 987 were interviewed by telephone (91% of the initial sample). Of these patients, 838 participants completed the 12-month assessment (77%), 785 participants completed the 24 month assessment (72%), and 613 (54% of participants) completed the 6-year assessment.

Individuals who refused to participate in the study did not differ from participants in gender, presence of mTBI, education, mechanism of injury, length of stay, or injury severity score (ISS). Those who did not complete the 72 month assessment did not differ from those who were recruited in terms of gender, the presence of mTBI, education, mechanism of injury, length of stay, or ISS. Those who did not complete the 6-year assessment were younger ($M$ = 36.33, $SD$ = 13.56, vs $M$ = 39.53, $SD$ = 13.48 ($t(1126) = 3.97$, $p < .001$) and had higher baseline CAPS scores $M$ = 20.21, $SD$ = 17.89, vs $M$ = 16.13, $SD$ = 15.06 ($t(1113.9) = 4.17$, $p < .001$) than completers.

### Data Analysis

We first identified the best-fitting unconditional trajectory model by comparing the model fit of progressive numbers of classes. We compared models that included linear only components as well as those that modeled both linear and quadratic parameters to determine which shape best fit the latent trajectories. Progressive models (e.g., 1 class, 2 class, 3 class) were compared using the following information criteria: the Bayesian Information Criterion (BIC), the sample size-adjusted Bayesian Information Criterion (SS-BIC), and the Aikaike Information Criterion (AIC).

We also evaluated models on the basis of fit statistics, including the Lo-Mendell-Rubin Test (LMRT) test and the Bootstrap-Loglikelihood Ratio Test (BLRT). We also considered entropy values, with values approaching 1 indicating better fit. Finally, we also evaluated model fit on the basis of parsimony and interpretability [1].

## Results

### Unconditional Model

Overall, the models incorporating both linear and quadratic component evidenced superior fit to models with a linear only component (see Table DS1). We judged the 5-class solution with both the linear and quadratic component as having the best fit as evidenced by substantial decreases in the AIC, the BIC, and the SS-BIC. In contrast, these indices evidenced only incremental decreases from the 5-class to the 6-class solution. The LMRT demonstrated consistent non-significant differences between class solutions though this metric has consistently been shown to be weak[1]. The BLRT continued to reveal significant improvement with the addition of new classes. However, the addition of a 6$^{th}$ class revealed a class that was substantively non-distinct from another class, and represented only 3% of the sample, thus the 5-class solution was retained. The entropy value associated with the 5-class model, while smaller than the 4-class solution, was larger than the subsequent 6-class solution. These indices, in combination with the interpretability and parsimony of the 5-class solution led us to retain this model for conditional analyses.

The magnitude and significance of the intercept, and linear and quadratic slope parameters also maintained consistent across the models, indicating good stability (see Table DS2).

## References

1. Nylund K, Asparouhov T, Muthén B. Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. Struct Equat Model 2007;14:535-69.

**Table DS1** Goodness-of-fit for unconditional models of PTSD symptom trajectories

| | AIC | BIC | SS-BIC | Entropy | LMR-LRT | BLRT |
|---|---|---|---|---|---|---|
| **Linear only** | | | | | | |
| **1 class** | 37122.7 | 37163.08 | 37137.67 | | | |
| **2 class** | 36781.61 | 36837.13 | 36802.19 | 0.85 | 331.42, *p*=.03 | <.001 |
| **3 class** | 36528.95 | 36599.61 | 36555.14 | 0.86 | 246.98, *p* = .01 | <.001 |
| **4 class** | 36401.52 | 36487.33 | 36433.33 | 0.86 | 127.40, *p*= .30 | <.001 |
| **5 class** | 36297.29 | 36398.24 | 36334.72 | 0.87 | 120.26, *p* = .06 | 0.06 |
| **6 class** | 36231.71 | 36347.8 | 36274.74 | 0.85 | 86.62, *p* = .08 | 0.08 |
| **7 class** | 36160.43 | 36291.66 | 36209.08 | 0.83 | 73.79, *p* = 0.25 | <.001 |
| **Linear + quadratic** | | | | | | |
| **1 class** | 37087.02 | 37132.45 | 37103.86 | | | |
| **2 class** | 36446.78 | 36512.4 | 36471.11 | 0.86 | 626.03, *p*<.001 | <.001 |
| **3 class** | 36204.83 | 36290.64 | 36236.64 | 0.88 | 241.39, *p*=.35 | <.001 |
| **4 class** | 36081.07 | 36187.07 | 36120.37 | 0.87 | 127.24, *p* = .15 | <.001 |
| **5 class** | 35916.99 | 36043.17 | 35963.77 | 0.86 | 166.19, *p* = .07 | <.001 |
| **6 class** | 35861.89 | 36008.27 | 35916.16 | 0.85 | 60.93, *p* = .53 | <.001 |
| **7 class** | 35759.12 | 35925.69 | 35820.87 | 0.86 | 64.14, *p* = .09 | <.001 |

**Table DS2** Frequencies and model parameters for five-class solution in unconditional and conditional models

| | Unconditional model | | | | Conditional model | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Intercept | Linear slope | Quad slope | % | Intercept | Linear slope | Quad slope |
| Chronic | 5.2% | 61.23*** | 4.46*** | -0.16*** | 5.2% | 63.16*** | 1.04* | -0.01*** |
| Worsening/Recovery | 8.1% | 22.35*** | 7.95** | -0.32*** | 8.1% | 22.54*** | 2.67*** | -0.04*** |
| Worsening | 9.6% | 22.92*** | 2.57*** | -0.06* | 10.2% | 21.29*** | 0.85*** | -0.01* |
| Recovery | 5.7% | 55.68*** | -2.27* | 0.03 | 8.2% | 44.74*** | -0.69* | 0.01 |
| Resilient | 72.3% | 12.91*** | -0.44*** | 0.01* | 68.3% | 11.88*** | -0.13** | 0.01 |