Appendix B – Details of the systematic Review

Data sources

The search for articles using LGMM to study the development of PTSD focused on four major databases: Pubmed, Embase, PsychInfo, and Scopus. To cast as wide a net as possible, we put no limits on publication year. We included all studies published until February 10, 2016. Identification of eligible papers followed the same search path for all four search-engines. The search terms were formed by including all unique combinations between five terms indicating PTSD as the topic of the article, and fourteen terms indicating LGMM as the analysis method used in the article, separated by the OR handle (see Table B1 for specific search terms used).

After the database search and screening, we attempted to find additional relevant articles in two ways. First, we used Scopus to export the reference lists of the studies included in our qualitative analysis. Second, we used Scopus to export the articles that have cited the studies included in our qualitative analyses since their publication. This additional search occurred on March 10, 2016.

Table B1. *Search terms*

Topic terms	Traumatic stress, stress disorder, posttraumatic stress, post-traumatic stress, PTSD
Analysis method terms	Trajectories, latent growth, latent factors, cluster, cluster analysis, latent class analysis, latent growth mixture modeling, mixed linear models, latent profile, mixture, typologies, profile, discriminant analysis

Note. As an illustration, here is the search syntax used to find articles in Scopus: *TITLE-ABS-KEY-AUTH((trajectories OR "latent growth" OR "latent factors" OR cluster OR "cluster analysis" OR "latent class analysis" OR "latent growth mixture modelling" OR "mixed linear models" OR "latent profile" OR mixture OR typologies OR profile OR "discriminant analysis") AND ("traumatic stress" OR "posttraumatic stress" OR "post-traumatic stress" OR "stress disorder" OR PTSD))*

Study Selection

Following the initial identification of relevant articles, exact duplicates were excluded. After that, there were two rounds of screening for eligibility. In the first round, eligibility was decided by investigating the title and abstract of the article by one author. All relevant papers were screened for

the actual application of one of the cluster techniques described in Table B1 within the context of trauma. If there was any doubt, the study was included for the second round. Note that in this stage, we were over-inclusive and during title screening, obviously irrelevant papers (N=5,822) were removed, for example cross-sectional studies, neurobiological studies and studies from other fields such as studies examining medical procedures after physical trauma.

In the second round, the full-text articles were independently read and screened by RvdS and MS for the following inclusion criteria: (a) longitudinal studies with at least three measurement waves measuring PTSD, (b) studies that measured PTSD on a continuous scale via an interview or questionnaire, (c) and studies that used a clustering method (LGMM, LCGA, hierarchical cluster analysis), (d) traumatic stress symptoms following events that appeared to fulfill DSM-IV criterion A1 for PTSD or acute stress disorder. Any disagreements were discussed and a consensus achieved. An excel containing all decisions and reasons for exclusion is included on the Open Science Framework (see https://osf.io/vk4be/).

Data extraction

A data extraction sheet was designed in Excel to record data. From the selected articles, additional information on the design and analysis of the study was obtained, see the online supplementary materials at the OSF, Table B2 and Figure B1. The recorded variables for each article included in the review are: year published, journal, country of data collection, sample size, reported sample characteristics, type of trauma (1, 2), number of measurement waves, timing of measurement waves, measure of PTSD and subscales if reported, number of trajectories found, sample size (proportion) per trajectory, interpretation per trajectory, proportion of sample per trajectory found, whether the trajectories found in the study correspond to the four classic trajectories proposed by Bonnano et al (2014), whether any predictors were included in the study, the final growth model estimates for the trajectories (if reported). Data were extracted by SDW and double checked by RvdS. Any disagreements were discussed with a third reviewer (MS) and a consensus was achieved.

Figure B1. Overview of the included studies including their measurement points.

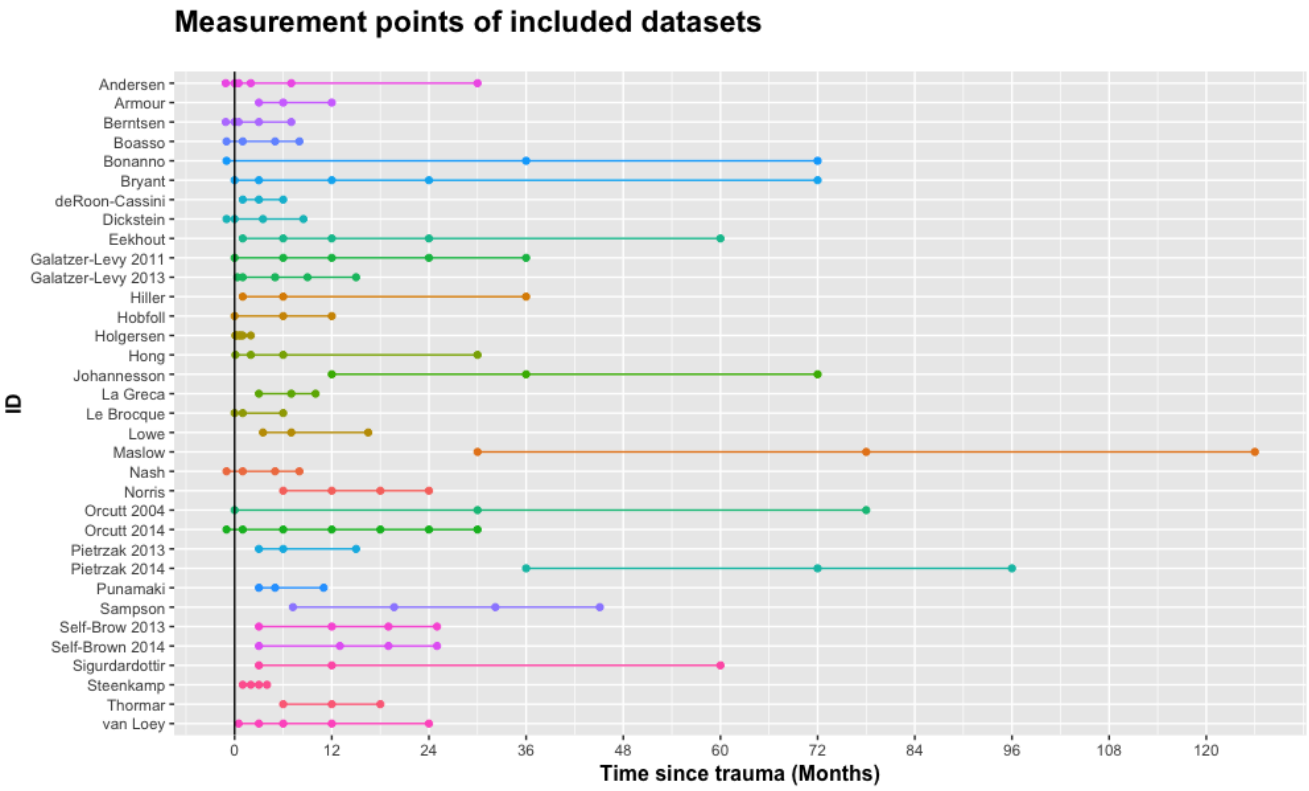

Table B2. Overview of the 34 included papers.

Reference	Type of trauma	nr of trajectories	Description of trajectories (%)
Andersen, S. B., Karstoft, K. I., Bertelsen, M., & Madsen, T. (2014).	Deployment to Afghanistan	6	Six classes: Mild distress (4.1%), low-stable (78.1%), late onset (5.7%), distressed-improving (2.7%), relieved-worsening (2.0%), low-fluctuating (7.5%)
Armour, C., Shevlin, M., Elklit, A., & Mroczek, D. (2012).	Rape victims	2	Two classes: Low stable (35%), high decline (65%)
Berntsen, D., Johannessen, K. B., Thomsen, Y. D., Bertelsen, M., Hoyle, R. H., & Rubin, D. C. (2012).	6-month deployment to Afghanistan in 2009:	6	Six classes: the resilient, extremely resilient, new-onset, strong-benefit, mild-benefit, late-benefit
Boasso, A. M., Steenkamp, M. M., Nash, W. P., Larson, J. L., & Litz, B. T. (2015).	War zone deployement	5	Combined percentages over 3 subsamples: resistant/no trauma (28.3%), resilience (49.6%), recovering (8.5%), chronic (11.7%), delayed (2%)
Bonanno, G. A., Mancini, A. D., Horton, J. L., Powell, T. M., LeardMann, C. A., Boyko, E. J., . . . Smith, T. C. (2012).	US military personnel deployed in Afghanistan	4	Four classes: High stable (2.2%), moderate improving (8%), low stable (83.1%), worsening - chronic (6.7%)
Bryant, R. A., Nickerson, A., Creamer, M., O'Donnell, M., Forbes, D., Galatzer-Levy, I., . . . Silove, D. (2015).	Injury patients	5	Five classes: Chronic (4%), recovery (6%), worsening/recovery (8%), worsening (10%), resilient (73%)
deRoon-Cassini, T. A., Mancini, A. D., Rusch, M. D., & Bonanno, G. A. (2010).	Traumatic injury	4	Four classes: resilient (59%), chronic (22%), delayed (6%; started high, then had a dip, then back up high), and recovering (13%)
Dickstein, B. D., Suvak, M., Litz, B. T., & Adler, A. B. (2010).	War combat exposure	4	Four classes: resilient (84%), delayed onset (3%), unrealized expectations (9%; high pre-deployment, low post-deployment), recovery (4%)
Eekhout, I., Reijnen, A., Vermetten, E., & Geuze, E. (2016).	Deployment	3	Three classes: Resilient (85%), recovered (5%), delayed-onset (9%)
Galatzer-Levy, I. R., Ankri, Y., Freedman, S., Israeli-Shalev, Y., Roitman, P., Gilad, M., & Shalev, A. Y. (2013).	Accidents/injury (motor vehicle, terrorist, work, other)	3	Three classes: Rapid Remitting (56%), Slow Remitting (27%), Non Remitting (17%)
Galatzer-Levy, I. R., Madan, A., Neylan, T. C., Henn-Haase, C., & Marmar, C. R. (2011).	Exposure to life threatening events	3	Three classes: resilient (88%), distressed-improving (10%), distressed-worsening (2%)
Hiller, R. M., Halligan, S. L., Ariyanayagam, R., Dalgleish, T., Smith, P., Yule, W., . . . Meiser-Stedman, R. (2016).	Motor Vehicle Collisions	2	Two classes: Low trajectory (63.4%), high trajectory (36.6%)

Hobfoll, S. E., Mancini, A. D., Hall, B. J., Canetti, D., & Bonanno, G. A. (2011).	Political violence among Palestinians	3	Three classes: moderate-improving (73%), severe-chronic (23.2%), severe-improving (3.5%)
Holgersen, K. H., Klöckner, C. A., Jakob Boe, H., Weisæth, L., & Holen, A. (2011).	The 1980 North Sea oil rig disaster	4	Four classes: Chronic (11%), Recovering (14%), Resilient (61%), Relapsing (N=9)
Hong, S. B., Youssef, G. J., Song, S. H., Choi, N. H., Ryu, J., McDermott, B., . . . Kim, B. N. (2014).	Watching the death of two mothers from classmates	4	Four classes: Chronic Dysfunction (1.8%), Recovery (19.9%), Delayed Reaction (5.6%), Resilience (72.7%)
Johannesson, K. B., Arinell, H., & Arnberg, F. K. (2015).	Tsunami	4	Four classes: resilient (72.3%), severe chronic (4.6%), moderate chronic (11.2%), recovering (11.9%)
La Greca, A. M., Lai, B. S., Llabre, M. M., Silverman, W. K., Vernberg, E. M., & Prinstein, M. J. (2013).	Natural disaster (hurricane)	3	Three classes: resilient (37%), recovering (43%), chronic (20%)
Le Brocque, R. M., Hendrikz, J., & Kenardy, J. A. (2010).	Child accidental injury; its effect on parents	3	Three classes: resilient (78%), recovery (8%), chronic subclinical (14%)
Lowe, S. R., Joshi, S., Pietrzak, R. H., Galea, S., & Cerdá, M. (2015).	Hurricane	4	Four classes: Resilient (74.9%), recovery (14.7%), chronic (5.2%), delayed (5.2%)
Maslow, C. B., Caramanica, K., Welch, A. E., Stellman, S. D., Brackbill, R. M., & Farfel, M. R. (2015).	WTC attack	5	Five classes: low-stable (53.3%), moderate- stable (28.7%), moderate-increasing (6.4%), high-decreasing (7.7%), and high-stable (4.0%).
Nash, W. P., Boasso, A. M., Steenkamp, M. M., Larson, J. L., Lubin, R. E., & Litz, B. T. (2014).	War in Afghanistan	3	Three classes: low stable (79%), new-onset PTSD (13%), pre-existing PTSD (8%)
Norris, F. H., Tracy, M., & Galea, S. (2009).	Mexico: flood USA: terrorist attack (9/11)	5 & 7	Mexico: Five classes: stable, mild (35%), stable, moderate (12%), stable severe (10%), steep decline (32%), moderate decline (11%). USA: Seven classes: resilient (40%), steep decline (10%), moderate decline (9%), slight increase (13%), increase after 2 years (14%), moderate increase (10%), stable severe (3%)
Orcutt, H. K., Bonanno, G. A., Hannan, S. M., & Miron, L. R. (2014).	Campus mass shooting	4	Four classes: minimal impact resilience (60.9%), high impact-recovery (29.1%), moderate impact-moderate symptoms (8.2%), chronic dysfunction (1.8%)
Orcutt, H. K., Erickson, D. J., & Wolfe, J. (2004).	War combat exposure	2	Two classes: resilient (57%), and increasing (43%)
Pietrzak, R. H., Feder, A., Singh, R., Schechter, C. B., Bromet, E. J., Katz, C. L., . . . Southwick, S. M. (2014).	WTC 9 –11: Police Responders Non-traditional Responders	4 & 6	Police responders: Four classes: resistant/resilient (77.8%), chronic (5.3%), recovering (8.4%), delayed-onset (8.5%). Non-traditional responders: Six classes: resistant/resilient (58.0%), severe chronic (9.5%), moderate chronic (6.2%), recovering (12.3%), subsyndromal increasing (7.3%), delayed onset (6.7%)

Pietrzak, R. H., Van Ness, P. H., Fried, T. R., Galea, S., & Norris, F. H. (2013).	Large magnitude disaster (hurricane Ike)	3	Three classes: resistant (78.7%), chronic (16.0%), delayed onset (5.3%)
Punamaki, R. L., Palosaari, E., Diab, M., Peltonen, K., & Qouta, S. R. (2014).	2008/2009 War on Gaza	3	Three classes: recovery (n = 183), resistant (29), increasing symptoms (28)
Sampson, L., Cohen, G. H., Calabrese, J. R., Fink, D. S., Tamburrino, M., Liberzon, I., . . . Galea, S. (2015).	Deployment	4	Four classes: Chronic Dysfunction (4.7%), constant (mild; 11.7%), resilient (42.2%), resistant (41.5%)
Self-Brown, S., Lai, B. S., Harbin, S., & Kelley, M. L. (2014).	Hurricane Katrina	3	Three classes: chronic (4%), recovering (30%), resilient (66%)
Self-Brown, S., Lai, B. S., Thompson, J. E., McGill, T., & Kelley, M. L. (2013).	Hurricane Katrina	3	Three classes: resilient (71%), recovering (25%), chronic (4%)
Sigurdardottir, S., Andelic, N., Roe, C., & Schanke, A. K. (2014).	Traumatic brain injury	4	Four classes: resilience (73.5%), delayed distress (6.8%), recovery (14.6%), chronic distress (5.1%)
Steenkamp, M. M., Dickstein, B. D., SaltersPedneault, K., Hofmann, S. G., & Litz, B. T. (2012).	Sexual assault	4	Four classes A high chronic trajectory (6.7%), a moderate chronic trajectory (16.0%), a moderate recovery trajectory (47.9%), and a marked recovery trajectory (29.4%)
Thormar, S. B., Sijbrandij, M., Gersons, B. P., Van de Schoot, R., Juen, B., Karlsson, T., & Olff, M. (2016).	WTC attack: Core and Non-core volunteers	2 & 2	Core volunteers: Two classes: Resilient (90%), chronic (10%) Non-core volunteers: Two classes: Resilent (92%), chronic (8%)
van Loey, N. E., van de Schoot, R., & Faber, A. W. (2012).	Burn victims	4	Four classes. 62.8 % resilient, 17.4% recovering, 15% chronic, 4.8% delayed onset

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