**Additional file 1**

This is supplementary information to the following article:

The prevalence and course of posttraumatic stress disorder symptoms in partners of burn survivors.  
E. Boersma-van Dam, R. van de Schoot, R. Geenen, I. M. Engelhard, & N. E. E. Van Loey.  
*Critical Care*

*Description*

This additional file shows an overview of the model development process that was followed in Mplus to come to the final piecewise growth model that described and predicted the trajectory of Post-traumatic stress symptoms in partners of burn survivors during 18 months post-burn. Table A lists the growth models that were subsequently tested, and, for each model, it provides information on the modelfit statistics, errors and warnings it produced, and a note on the conclusion about the model and the next step in the process.

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| Table A.*The model development process for a growth model that describes the trajectory of Post-traumatic stress symptoms in partners of burn survivors during 18 months post-burn (N=111)* | | | | | | | | | |
| **Nr** | **Type** | **Mplus model** | **X2 (p)** | **Df** | **RMSEA** | **CFI** | **TLI** | **Errors / Warnings** | **Notes** |
| 1 | growth | is | m1@0 m2@.3 m3@.6 m4@1.2 m5@1.8 | 92.57 (<.001) | 10 | .273 | .648 | .648 |  | Bad modelfit --> add quadratic term |
| 2 | growth | isq | m1@0 m2@.3 m3@.6 m4@1.2 m5@1.8 | 47.68 (<.001) | 6 | .250 | .822 | .704 | Warning: The residual covariance matrix (theta) is not positive definite (Negative residual m5) | Warning and bad modelfit --> add cubic term |
| 3 | growth | isqc | m1@0 m2@.3 m3@.6 m4@1.2 m5@1.8 | 5.29 (.02) | 1 | .197 | .982 | .817 | Warnings: 1) The residual covariance matrix (theta) is not positive definite (Negative residual m5). 2) The latent variable covariance matrix (psi) is not positive definite (involving Q). | Warnings and bad modelfit --> try equal time intervals between all measurements |
| 4 | growth | isqc | m1@0 m2@.3 m3@.6 m4@.9 m5@1.2 | 1.24  (.27) | 1 | .046 | .999 | .990 | Warnings: 1) Warning: The residual covariance matrix (theta) is not positive definite (Negative residual m5). 2) The latent variable covariance matrix (psi) is not positive definite (involving C). | Good modelfit, but warnings --> try simpler model without cubic term |
| 5 | growth | isq | m1@0 m2@.3 m3@.6 m4@.9 m5@1.2 | 24.25 (<.001) | 6 | .166 | .922 | .870 | Warning: The residual covariance matrix (theta) is not positive definite (Negative residual m5) | Bad modelfit --> for completeness try model without quadratic term |
| 6 | growth | is | m1@0 m2@.3 m3@.6 m4@.9 m5@1.2 | 75.33 (<.001) | 10 | .243 | .721 | .721 |  | Bad modelfit. A sharp decline in mean PTSD symptoms between m1 and m2 and a small decrease after m2 is observed. Two options were considered: 1) a growth model without m1; and 2) a piecewise growth model. We choose option 2, because we preferred to analyze the data of all measurement moments in one analysis. |

| Table A (continued). | | | | | | | | | |
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| 7 | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.9 m5@1.5; | 20.89  (.002) | 6 | .150 | .936 | .894 | No convergence. Number of iterations exceeded. | Fixed: Iterations increased to 3000 Bad modelfit --> try equal time intervals |
| 7x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; | 15.01 (.02) | 6 | .116 | .962 | .936 |  | Modelfit better, but still not good with regard to all indicators. --> Try adding the predictors and explore both with actual time intervals and with equal time intervals |
| 8 | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.9 m5@1.5; all predictors: age, gender, surgeries, life threat, anger, guilt, rumination | 45.83 (<.001) | 20 | .108 | .926 | .834 | No convergence. Number of iterations exceeded.  Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1). | Fixed: Iterations increased to 40000  Warning and bad modelfit |
| 8x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; all predictors: age, gender, surgeries, life threat, anger, guilt, rumination | 40.19  (.005) | 20 | .095 | .942 | .870 | Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1) | Warning and bad modelfit --> try a model with less predictors (first only age, gender, surgeries) to explore which predictor(s) cause the warnings. |
| 9 | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.6 m4@.9 m5@1.5; predictors: age, gender, surgeries | 38.41 (<.001) | 12 | .141 | .894 | .780 | Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1) | Warning and bad modelfit |
| 9x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; predictors: age, gender, surgeries | 32.15 (.001) | 12 | .123 | .919 | .832 | Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1). | Warning and bad modelfit |
| 10 | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.6 m4@.9 m5@1.5; predictors: age, gender | 37.39 (<.001) | 10 | .157 | .890 | .779 | No convergence. Number of iterations exceeded.  Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1). | Fixed: Iterations increased to 40000  Warning and bad modelfit |
| 10x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; predictors: age, gender | 31.49 (<.001) | 10 | .139 | .913 | .827 | Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1). | Warning and bad modelfit |
| 11 | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.6 m4@.9 m5@1.5; predictors: age, surgeries | 32.58 (<.001) | 10 | .143 | .908 | .817 | Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1). | Warning and bad modelfit |
| 11x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; predictors: age, surgeries | 25.46 (.005) | 10 | .118 | .937 | .874 | Warning: The residual covariance matrix (theta) is not positive definite (negative residual m1). | Warning and bad modelfit |
| 12 | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.6 m4@.9 m5@1.5; predictors: gender, surgeries | 25.85 (.004) | 10 | .119 | .934 | .867 |  | No warnings --> age seems to cause the warnings |
| 12x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; predictors: gender, surgeries | 20.58  (.02) | 10 | .098 | .956 | .911 |  | Next step: add the other predictors to see if no further warnings occur |
| **13** | **piece-wise growth** | **i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.6 m4@.9 m5@1.5; final predictors: gender, surgeries, life threat, anger, guilt, rumination** | **32.09**  **(.02)** | **18** | **.084** | **.958** | **.907** |  | **Modelfit acceptable, no warnings. This is the final model and results are reported in the article** |
| 13x | piece-wise growth | i s1 | m1@0 m2@.3 m3@.3 m4@.3 m5@.3;  i s2 | m1@0 m2@0 m3@.3 m4@.6 m5@.9; final predictors: gender, surgeries, life threat, anger, guilt, rumination | 27.59  (.07) | 18 | .069 | .971 | .937 |  | Modelfit acceptable, no warnings. Although the modelfit is slightly better than for model 13, the difference is not large enough to select this model as the final model. Also, model 13 is preferred, as it describes actual time intervals. |
| Estimator = Maximum Likelihood with 10,000 bootstraps for all models | | | | | | | | | |