Additional file 2: Sensitivity analysis

Sensitivity analysis was conducted to test the robustness of our results. Since variable selection in regression is challenging, we aimed at verifying that the correlates in the final model form the best subset among all variables. The original approach selects variables based on highest ranks according to p-values and sets the cut-off at \( P \leq 0.1 \) for the inclusion of variables from the full model to the final model. In sensitivity analysis, a p-value of 0.25 was used as a threshold to set up the model. Based on this model, relative importance based on model \( R^2 \) decomposition was calculated [1, 2], i.e. for each model the sum of relative importance values corresponds to the model variance explained. Because the number of variables in the full model exceeds the vector size limit, the subset of variables with \( p \leq 0.25 \) (from the full multilevel model) was used. Figure 1 provides a summary of the results of the two approaches for TPA (A), MVPA (B) and SB (C). Indicated in the right margin are the p-values of variables in the final models, blue bars show the corresponding relative importance. Red bars indicate relative importance from sensitivity analysis. The figure clearly suggests that the results obtained from the original approach are in line with the results from the procedure used for sensitivity analysis. This confirms the robustness of our results.
Figure 1. Comparison of results from the original approach to those obtained in sensitivity analysis for TPA (A), MVPA (B) and SB (C). Indicated in the right margin are the p-values of variables in the final models, blue bars show the corresponding relative importance. Red bars indicate relative importance from sensitivity analysis.

References