Supplementary Figures for "Revealing Subject-specific Temporal Patterns from Longitudinal Data"

Metabolomics Data Analysis

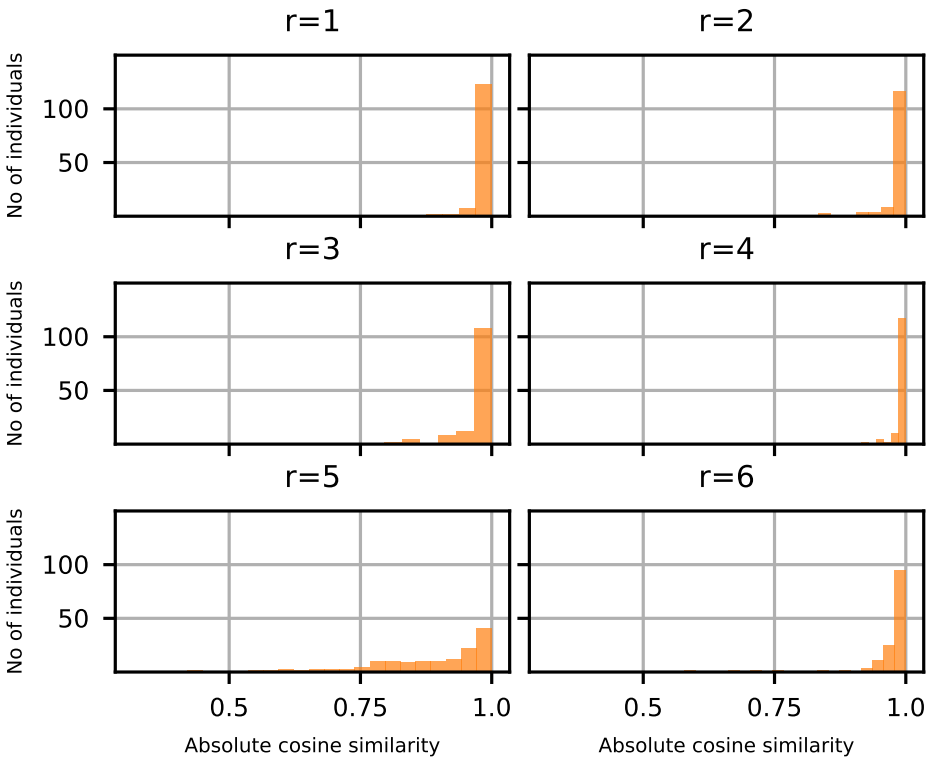

Figure S.1: Males. Comparison of subject-specific time profiles ($c_{k,r}[\mathbf{b}_k]_r$) captured by CMF and PARAFAC2 for each component for the metabolomics data. Each histogram contains 140 data points, one for each subject.

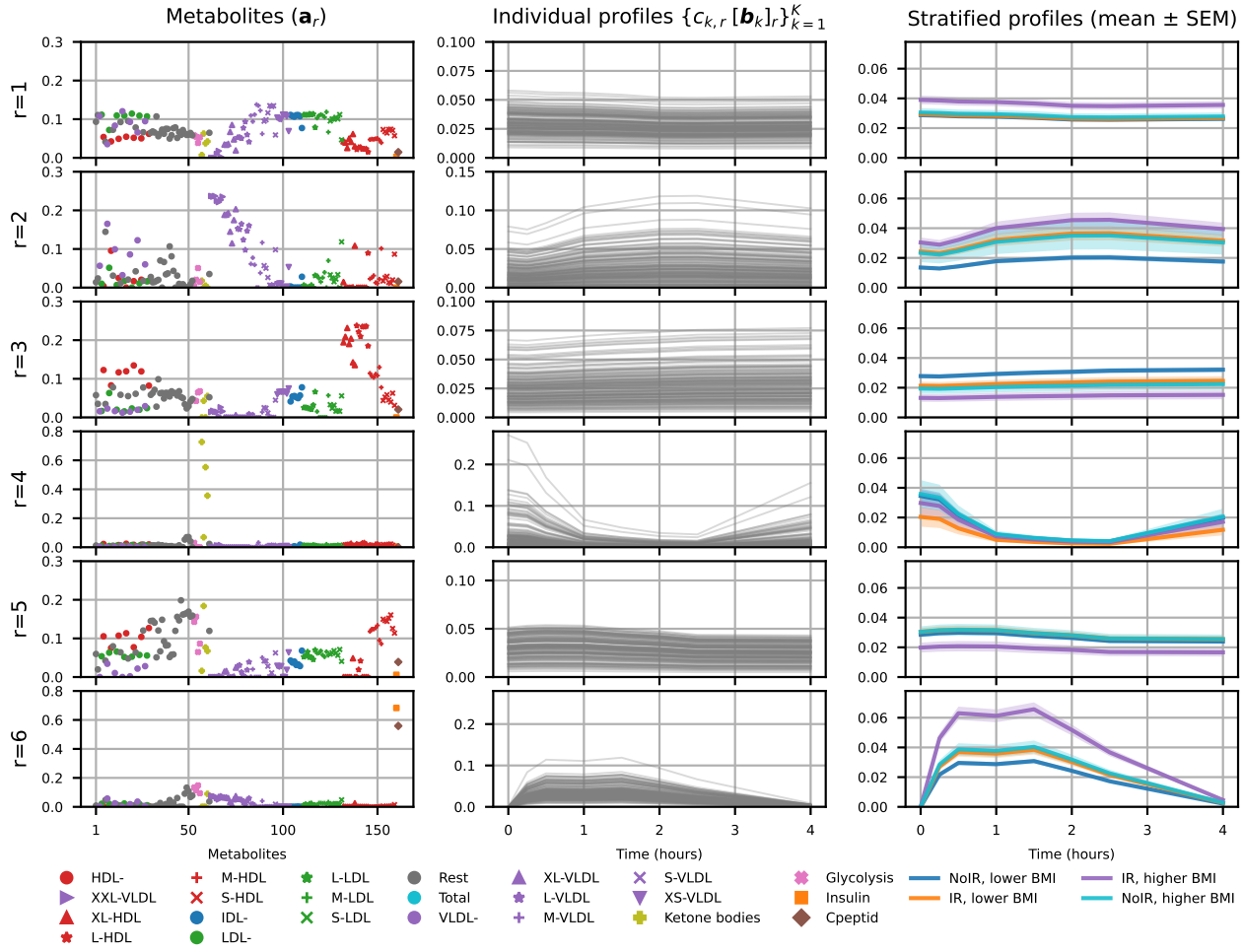

Figure S.2: Males. Components of a 6-component CP model (with nonnegativity constraints in all modes). $\mathbf{a}_r$ denotes the pattern in the metabolites mode, where metabolites are colored by lipoprotein classes. Different shapes are used for lipoprotein subclasses. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ for each component are shown in the middle column. The last column shows scaled subject-specific time profiles colored according to four BMI/IR groups.

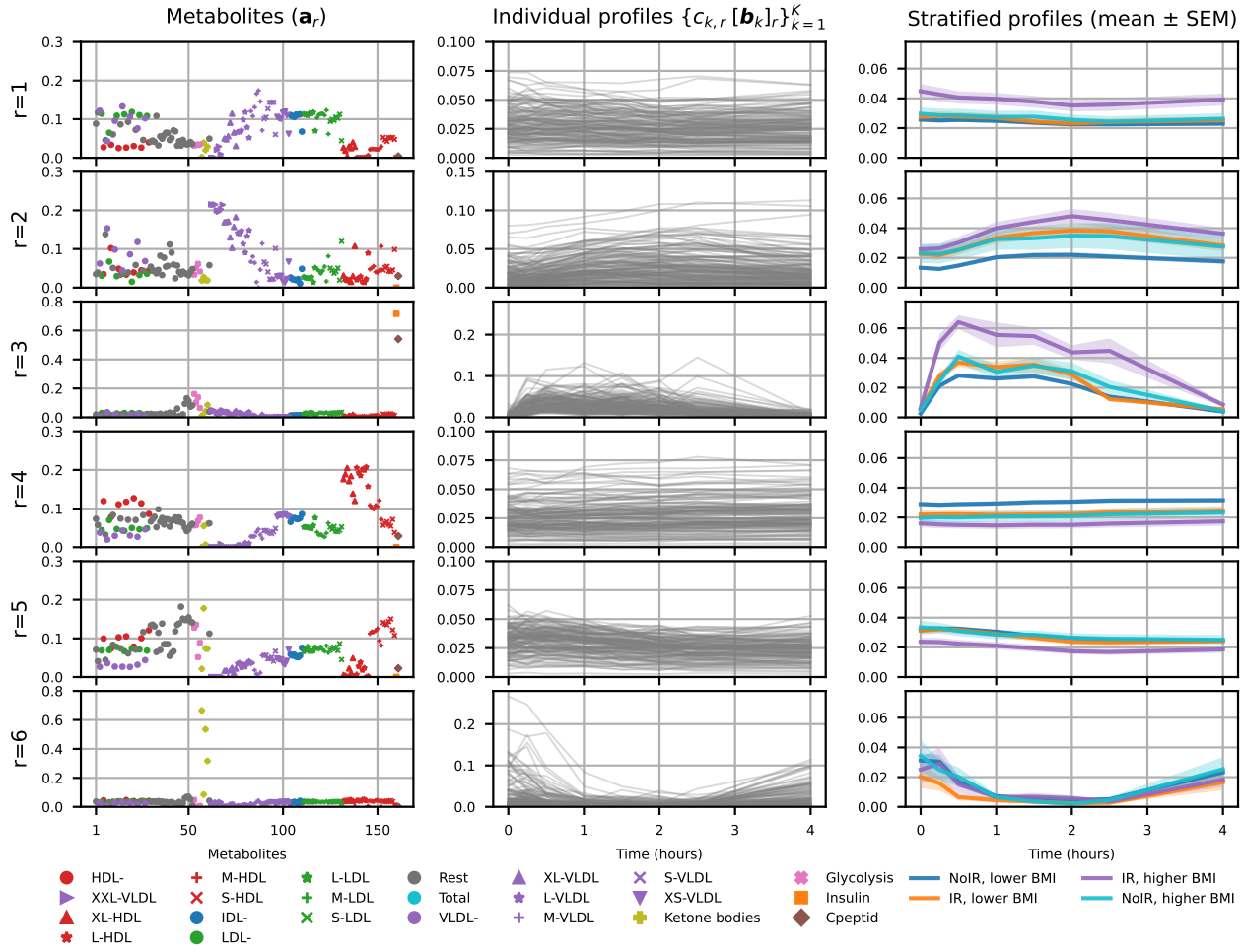

Figure S.3: Males. Components of a 6-component PARAFAC2 model (with nonnegativity constraints in all modes). $\mathbf{a}_r$ denotes the pattern in the metabolites mode, where metabolites are colored by lipoprotein classes. Different shapes are used for lipoprotein subclasses. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ for each component are shown in the middle column. The last column shows scaled subject-specific time profiles colored according to four BMI/IR groups.

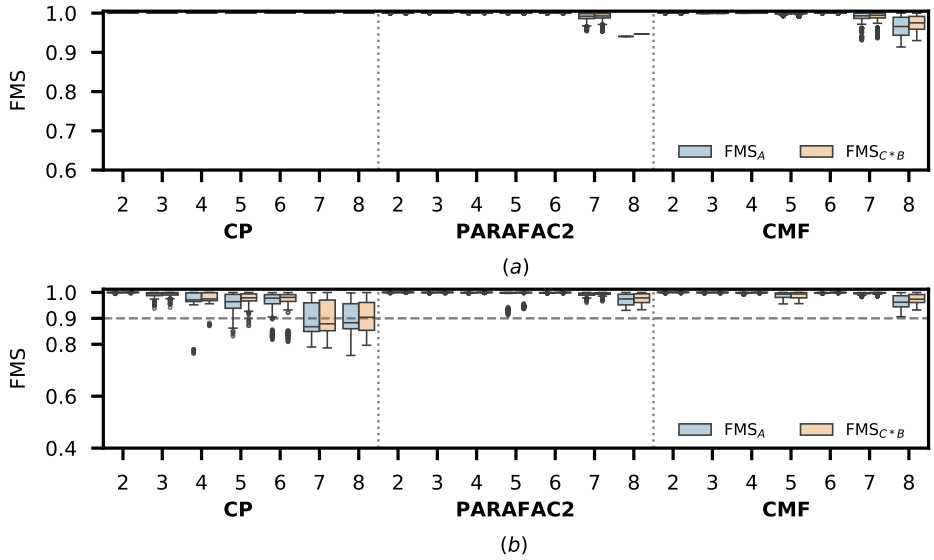

Figure S.4: Females. (a) Reproducibility, and (b) Replicability of different models of the metabolomics data using different number of components (R).

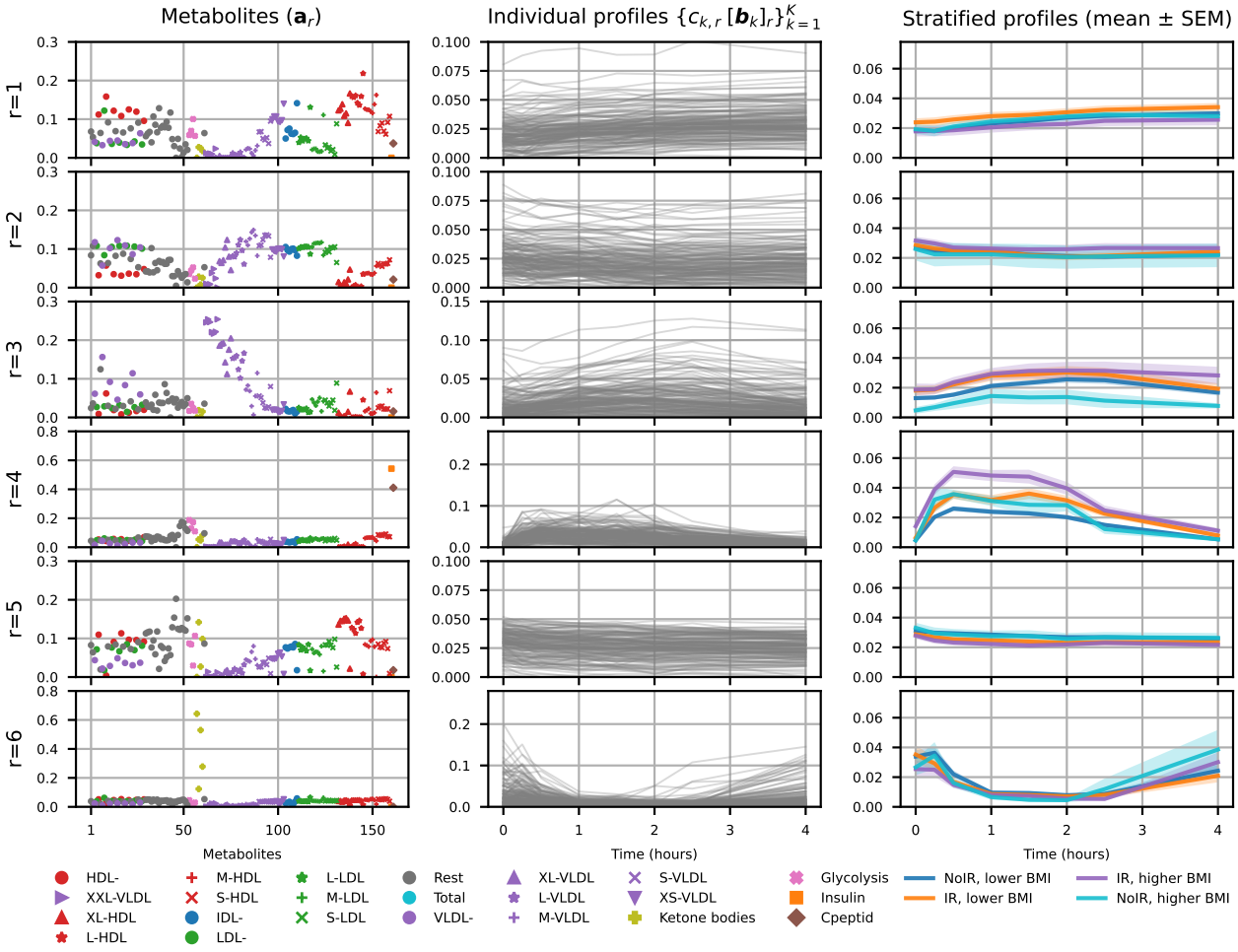

Figure S.5: Females. Components of a 6-component CMF model (with nonnegativity constraints in all modes). $\mathbf{a}_r$ denotes the pattern in the metabolites mode, where metabolites are colored by lipoprotein classes. Different shapes are used for lipoprotein subclasses. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ for each component are shown in the middle column. The last column shows scaled subject-specific time profiles colored according to four BMI/IR groups.

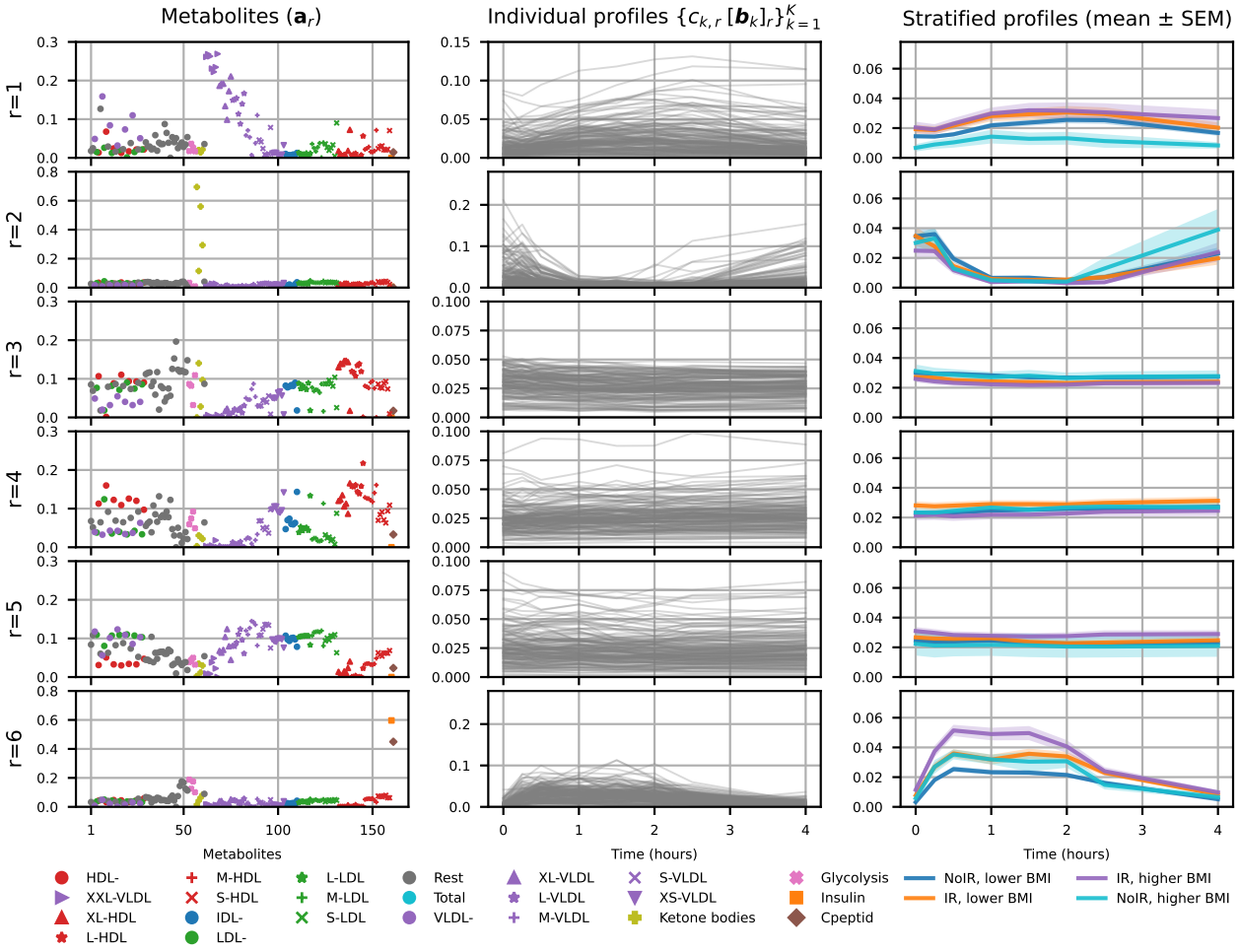

Figure S.6: Females. Components of a 6-component PARAFAC2 model (with nonnegativity constraints in all modes). $\mathbf{a}_r$ denotes the pattern in the metabolites mode, where metabolites are colored by lipoprotein classes. Different shapes are used for lipoprotein subclasses. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ for each component are shown in the middle column. The last column shows scaled subject-specific time profiles colored according to four BMI/IR groups.

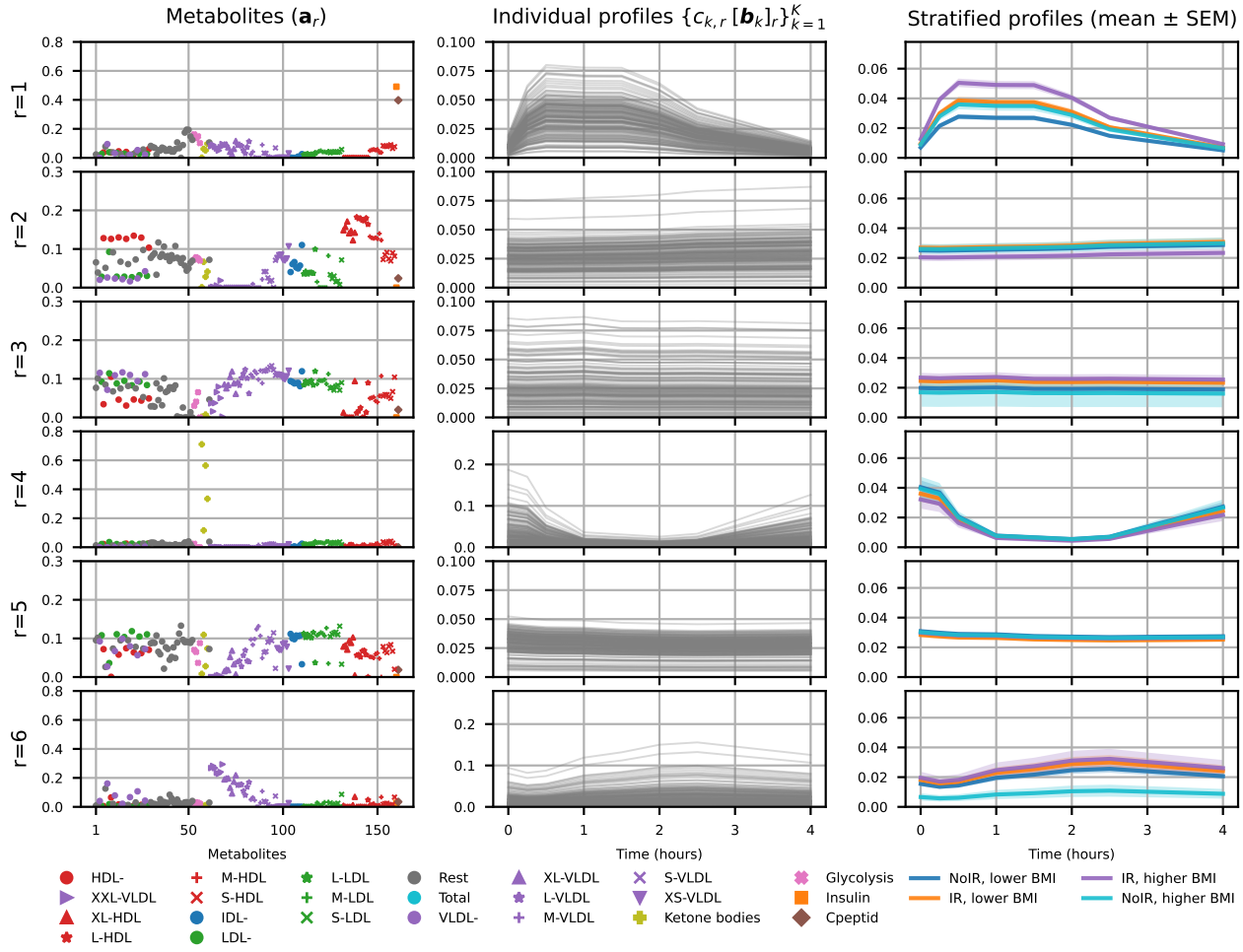

Figure S.7: Females. Components of a 6-component CP model (with nonnegativity constraints in all modes). $\mathbf{a}_r$ denotes the pattern in the metabolites mode, where metabolites are colored by lipoprotein classes. Different shapes are used for lipoprotein subclasses. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ for each component are shown in the middle column. The last column shows scaled subject-specific time profiles colored according to four BMI/IR groups.

Sensitization Data Analysis

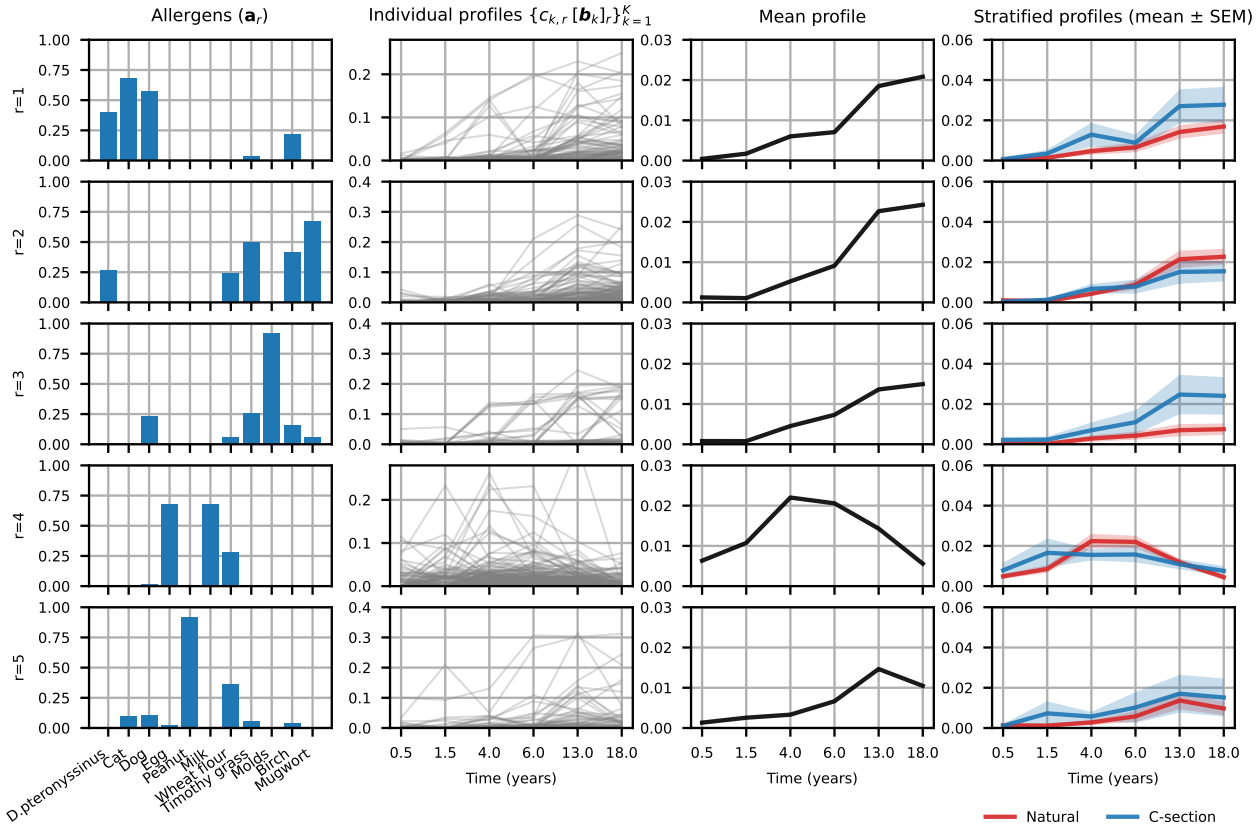

Figure S.8: Sensitization. Components of a 5-component PARAFAC2 model (with nonnegativity constraints in all modes). $\mathbf{a}_r$ denotes the pattern in the allergens mode. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ are shown in the middle column. Mean of scaled subject-specific profiles are plotted in the third column while the last column shows mean (and standard error of mean) patterns of scaled subject-specific time profiles colored according to delivery/birth mode groups.

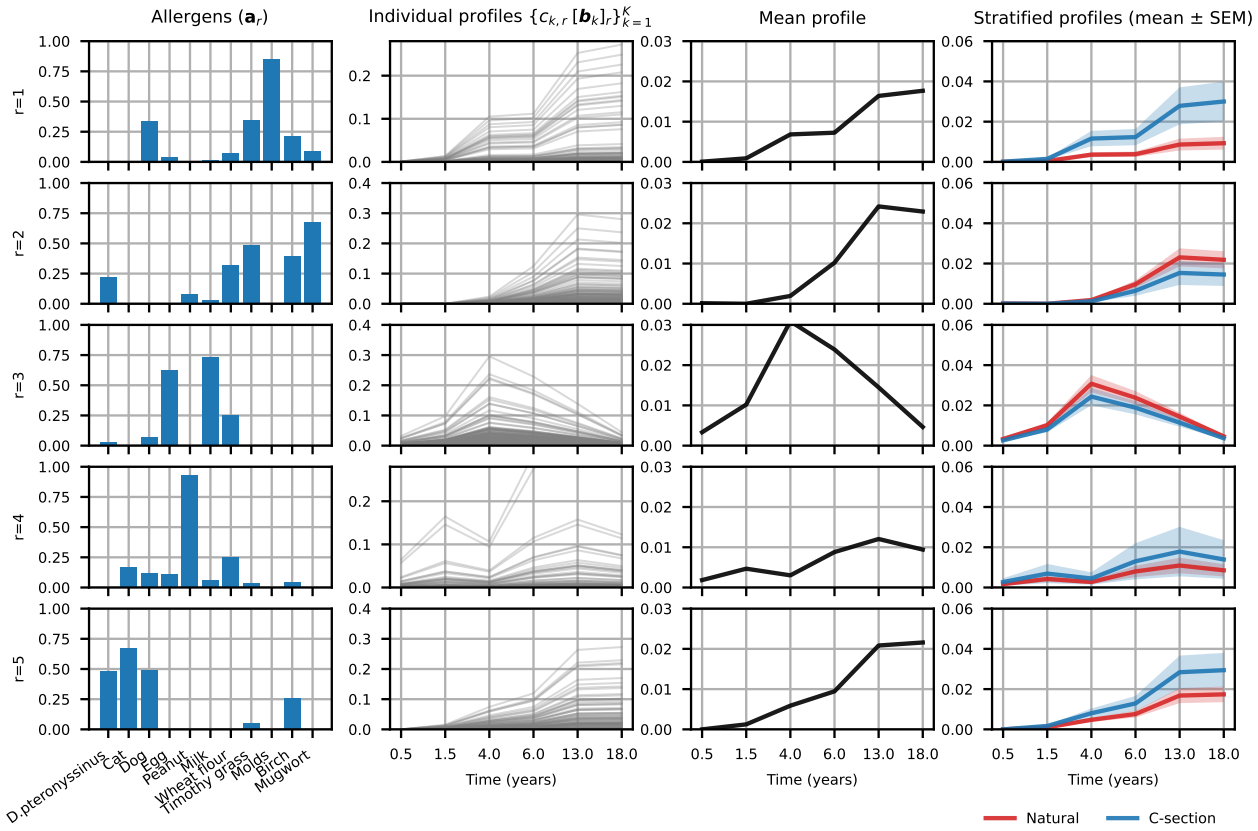

Figure S.9: Sensitization. Components of a 5-component CP model (with nonnegativity constraints in all modes) of the sensitization data. $\mathbf{a}_r$ denotes the pattern in the allergens mode. Subject-specific time profiles scaled by the corresponding subject scores, i.e., $c_{k,r}[\mathbf{b}_k]_r$ are shown in the middle column. Mean of scaled subject-specific profiles are plotted in the third column while the last column shows mean (and standard error of mean) patterns of scaled subject-specific time profiles colored according to delivery/birth mode groups.

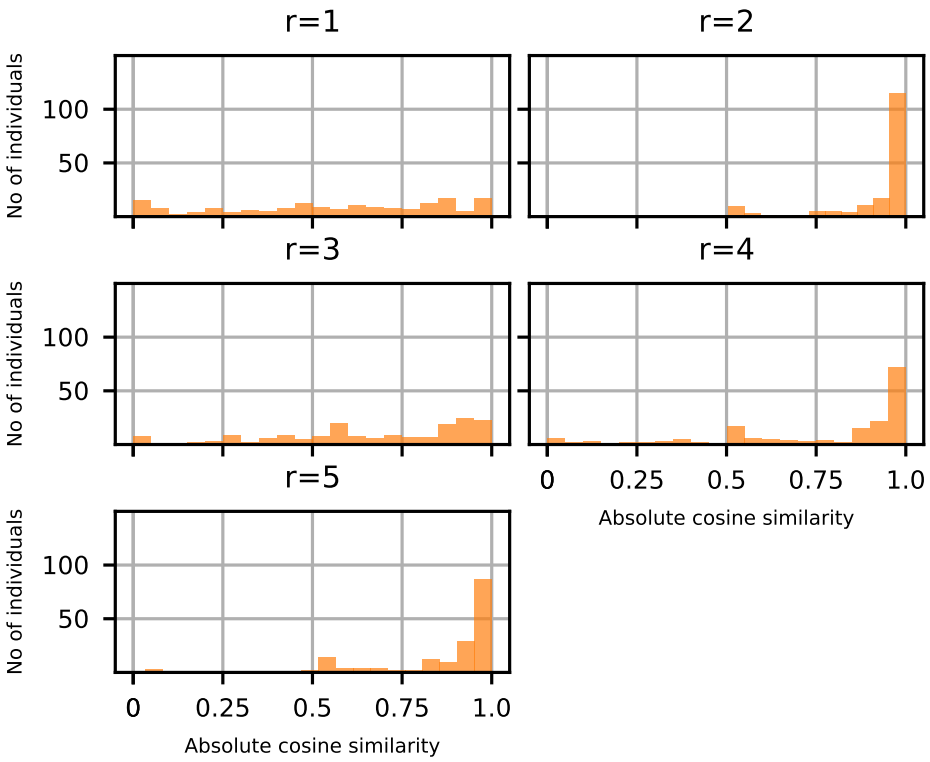

Figure S.10: Comparison of subject-specific time profiles ($c_{k,r}[\mathbf{b}_k]_r$) captured by CMF and PARAFAC2 for each component for sensitization, where each histogram contains 176 data points, one for each subject.