

The empathic personality profile: Using personality characteristics to reveal genetic, environmental, and developmental patterns of adolescents' empathy

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Walk through- OSF Repository

Scripts folder

The scripts are meant to run in the following order, as each script relies on the previous scripts.

1. **The_empathic_personality_profiles.Rmd:** This script performs the ridge regression that predicts empathy from Big-Five nuanced items and creates the empathic personality profiles. It also generates the file 'Dfinal_11_13', which will be used in the next scripts (for ease of use, the file is also attached separately in the data folder).
2. **Preliminary_genetic_analyses.Rmd:** This script performs all the preliminary analyses and examines twins' ICC in the study main variables (empathy and empathic personality profiles) before conducting the biometric cross-lagged analysis in the Mx software. It also calculates the correlations between the study's main variables and non-self-report measures of empathy. Finally, it generates the file 'DWide_4Mx' that will be used in the biometric cross-lagged analysis (for ease of use, the file is also attached separately in the data folder. Notice that it requires a few more modifications outside of R, described in the script).
3. **SaturatedModelFit_Biometric_cross_lagged_nofamID.mx:** This is an Mx script used to calculate the saturated model fit, needed for computing the biometric cross-lagged model fit.

4. **Biometric_cross_lagged_model_noifams.mx**: This is an Mx scripts used to estimate the Biometric cross-lagged models for emotional and cognitive empathy and empathic personality profiles.

Data folder

1. **Age11/age13_EmpPer_anonymized.csv**: Emotional and cognitive empathy scores + Big-Five items
2. **Age11/age13_ParentEmp_anonymized.csv**: Parent-reported emotional empathy
3. **Age 11/age 13_participants_age.csv**: Participants' age within each wave
4. **Age13_emotion_recognition_test_finalvars_anonymized.csv**: Participants' final scores in the emotion recognition test (only for age 13)
5. **Age 11/age 13_gfold.csv**: The variables indicating the random division to folds, which were used in the cross-validation Ridge regression. This division relies on participants ID numbers. Since IRB restrictions and confidentiality considerations prevent us from uploading the original ID numbers, the fold division specifically in the analysis that predicts age 13 data by the age 11 model cannot be replicated (although the results are very similar). If you want to replicate the results of this analysis as reported in the paper, you will need to use these files (see code in 'The_empathic_personality_profiles.Rmd').
6. **Participants_details.csv**: Sex (1=male; 2=female) and zygosity (1=MZ; 2=DZ same sex; 3=DZ opposite sex) information
7. **panel_results_PerEmp.csv**: Data for the independent test set (Emotional and cognitive empathy scores + Big-Five items)
8. **BFI items**: Big-Five item names (needed for plots)
9. **Dfinal_11_13.csv**: Final empathy and empathic personality profile scores. This file is generated by 'The_empathic_personality_profiles.Rmd' script and is being used in further scripts.
10. **DWide_4Mx_noifams.dat**: Empathy and empathic personality profile scores residualized from sex in a wide format (i.e., one row per family). This file is generated by the 'Preliminary_genetic_analyses.Rmd' script and is being used in further scripts.

Output folder

This folder includes the Mx output files for the emotional and cognitive empathy biometric cross-lagged models.