**PrePostMenarche\_PLEs.R\_README**

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PURPOSE OF CODE:

The purpose of this code is to calculate changes in Psychotic-Like Experiences (PLEs) from pre to post menarche.

RESEARCHER-FACING EXPLANATION OF CODE:

1. Derivative ABCD 6.0 menarche data were imported for youth (Youth\_PrePost\_Menarche\_9\_15\_25.csv) and parent (Parent\_PrePost\_Menarche\_9\_15\_25.csv) reports. These were used rather than raw data because they contain predetermined variables for when participants switched from premenarche to postmenarche (last\_pre\_session, first\_post\_session). Additionally, PQ-BC PLE data (mh\_y\_pps.tsv) and interview date data (ab\_g\_dyn.tsv) were imported.
2. Clean and Prepare Data
   1. Useful columns were kept and renamed for human readability, if necessary.
   2. Chronological list vectors of which sessions each subject had PLE data for were constructed and saved to has\_ple\_data
      1. e.g. c(“0”, “1”, “2”, “4”, “5”) = PLE data for sessions 00A, 01A, 02A, 04A, and 05A.
   3. Chronological list vectors of each subject’s PLE scores were constructed and saved to ple\_scores
      1. e.g. c(“15”, “12”, “15”, “30”, “13”, “21”, “0”) = score of 15 for ses-00A, 12 for ses-01A, etc.
      2. Aggregated PLE severity scores (mh\_y\_pps\_\_severity\_score) were used as PLE scores; they are a sum of how much each affirmative PLE endorsement bothered the subject (1-5 for 21 possible items).
      3. Bother sums were used to represent PLEs rather than sums of affirmative PLE endorsements because of potential/likely misreadings in PLE self-reports. Subjects may misread an item and provide an affirmative endorsement of a PLE that is not actually pathological, based on a semantic equivocation that could be corrected in an interview but not in a questionnaire. Example:
         * 1. Item 7: Did you ever feel very certain that you have very special abilities or magical talents that other people do not have?
           2. Response: Yes. (I have a special ability for talking to people, I get along with everyone)
      4. By using Bother sums, only affirmative endorsements are included, along with the tacit understanding that what’s happening to them probably should not be happening, validated by either negative social feedback or personal distress.
   4. PLE data and menarche data are merged into parent\_ples and youth\_ples, for parent and youth menarche reports, respectively
3. Find Best-Fit PreMenarche and PostMenarche Sessions with PLE data
   1. Wrote 2 functions:
      1. find\_pre\_ple\_session: finds the location index of the value in the has\_ple\_data list vector (1-7) corresponding to the session (with score data) that matches or most closely precedes a participant’s last premenarche report, will get saved to PLE\_PreSession\_index
         1. Example
            1. last\_pre\_session = 3
            2. has\_ple\_data = c(“0”, “1”, “2”, “4”, “5” “6”)
            3. finds “2” value, 3rd item in vector, PreScoreIndex = 3
      2. find\_post\_ple\_session: finds the location index of the value in the has\_ple\_data list vector (1-7) corresponding to the session (with score data) that matches or most closely follows a participant’s first postmenarche report, will get saved to PLE\_PostSession\_index
         1. Example
            1. first\_post\_session = 4
            2. has\_ple\_data = c(“0”, “1”, “2”, “4”, “5”, “6”)
            3. finds “4” value, 4th item in vector, PostScanIndex = 4
   2. Applied the find\_premenarche\_score & find\_postmenarche\_score functions to youth and parent reports
   3. Used the indexes (PLE\_PreSession\_index, PLE\_PostSession\_index) to identify the timepoints with score data most closely associated with premenarche and postmenarche reports
      1. Example
         1. has\_ple\_data = c(“0”, “1”, “2”, “4”, “5” “6”)
         2. PLE\_PreSession\_index = 3, 3rd item is “2”, ses-02A has the best-fit premenarche scan, “0” is saved to PLE\_PreSession
         3. PLE\_PostSession\_index = 4, 4th item is “4”, ses-04A has the best-fit postmenarche scan, “4” is saved to PLE\_PostSession
   4. Pulled the PLE Scores associated with PLE\_PreSession (Premenarche score) and PLE\_PostSession (Postmenarche score), saved to Pre\_PLE\_Score and Post\_PLE\_Score, respectively
4. Calculate Pre/Post Difference Scores
   1. Sanity Check—check for subjects that have premenarche and/or postmenarche reports that don’t have corresponding best-fit PLE scores
      1. n = 0 premenarche flags, n = 3 postmenarche flags, all are postmenarche after last ple score report
   2. Calculate Pre/Post Change Scores
      1. Subtracted Premenarche score from Postmenarche score, saved to ChangeScore
5. Days between Data collection and/or days between menarche report and data collection
   1. Interview dates were formatted so they could be systematically pulled and subtracted from each other, then merged in with PLE/Menarche data to make parent\_ples\_dates and youth\_ples\_dates
      1. Saved as a chronological list vector “interview\_dates”
   2. Calculating Date Differences
      1. Number of days between best-fit premenarche and postmenarche scores, saved to “between\_scores”
      2. Number of days between last premenarche and first postmenarche reports, saved to “PreMen->PostMen”
      3. Number of days from best-fit premenarche Score to last premenarche report, saved to “PreMenScore->PreMenReport”
      4. Number of days from first postmenarche report to best-fit postmenarche score, saved to “PostMenReport->PostMenScore”
6. Clean and Reorder dataframes for CSV export
   1. ple\_scores was converted to a string to retain readability while affording the ability to be written into a csv
   2. Necessary columns are kept and reordered
   3. Itemized menarche reports were renamed and merged in for reference
7. Write to CSV
   1. parent\_ples\_dates -> Parent\_PrePost\_PLEs\_Menarche\_9\_17\_25.csv
   2. youth\_ples\_dates -> Youth\_PrePost\_PLEs\_Menarche\_9\_17\_25.csv

EXPLANATION OF VARIABLES

|  |  |
| --- | --- |
| participant\_id | ABCD Participant Identifier |
| session\_id | ABCD Visit Identifier |
| last\_pre\_session | Numeric version of session with last premenarche report |
| first\_post\_session | Numeric version of session with first postmenarche report |
| PostMenarche\_at\_Baseline\_Y1N0 | Flags everyone who was postmenarche at first visit, Yes = 1 and No = 0 |
| PreMenarche\_at\_LastReport\_Y1N0 | Flags everyone who was premenarche through 6.0, Yes = 1 and No = 0 |
| Inconsistent\_Reporting\_Y1N0 | Flags everyone who reported being premenarche after reporting bein postmenarche  e.g. c(“0”, “0”, NA, “1”, **“0”,** “1”, “1”) = c(Pre, Pre, NA, Post, **Pre**, Post, Post) |
| mh\_y\_pps\_severity\_score | Aggregated Sum of how much each PLE endorsement (1-5, 21 items) bothered the subject. **Also referred to as PLE Score.** |
| ab\_g\_dyn\_\_visit\_dtt | Datetime for interview |
| interview\_date | Date of interview |
| interview\_dates | List vector of each participant’s interview dates |
| sesnum | Numeric version of session\_id; ses-00a = 0, ses-01A = 1, etc. |
| has\_ple\_data | Chronological list vector of sessions with PLE data; c(“0”, “1”, “2”, “4”, “5”) = subject has PLE data for sessions 00A, 01A, 02A, 04A, and 05A. |
| ple\_scores | Chronological list vector of mh\_y\_pps\_severity\_score values;  c(“15”, “12”, “15”, “30”, “13”, “21”, “0”) = score of 15 for ses-00A, 12 for ses-01A, etc. |
| find\_pre\_ple\_session | finds the location index of the value in the has\_ple\_data list vector (1-7) corresponding to the session (with score data) that matches or most closely precedes a participant’s last premenarche report, will get saved to PLE\_PreSession\_index |
| find\_post\_ple\_session | finds the location index of the value in the has\_ple\_data list vector (1-7) corresponding to the session (with score data) that matches or most closely follows a participant’s last postmenarche report, will get saved to PLE\_PostSession\_index |
| PLE\_PreSession\_Index | Location in has\_ple\_data list vector (1-7) of the value that matches or is the best-fit for last premenarche report |
| PLE\_PostSession\_Index | Location in has\_scores list vector (1-7) of the value that matches or is the best-fit for last postmenarche report |
| PLE\_PreSession | PreMenarche PLE session: Numeric version of the session with score data best-fit matched to last premenarche report |
| PLE\_PostSession | PostMenarche PLE session: Numeric version of the session with score data best-fit matched to first postmenarche report |
| Pre\_PLE\_Score | PreMenarche Score: PLE score from the session best-fit matched to last premenarche report |
| Post\_PLE\_Score | PostMenarche Score: PLE score from the session best-fit matched to first postmenarche report |
| PreFlag | Yes = 1 No = 0 Flag, signals if a subject has a last premenarche report and no corresponding PLE score |
| PostFlag | Yes = 1 No = 0 Flag, signals if a subject has a first postmenarche report and no corresponding PLE score |
| ChangeScore | Post\_PLE\_Score – Pre\_PLE\_Score; change in PLE severity score from premenarche to postmenarche |
| ab\_g\_dyn\_\_visit\_dtt | Datetime of each subject’s interview |
| interview\_date | Date of each subject’s interview, ab\_g\_dyn\_\_visit\_dtt without the time |
| interview\_dates | Chronological list vector of interview\_date ‘s |
| between\_scores | Number of days between PreMenarche PLE score date (PreScore\_date) and PostMenarche PLE Score date (PostScore\_date) |
| PreMen->PostMen | Number of days between PreMenarche report and PostMenarche report |
| PreMenScore->PreMenReport | Number of days from PreMenarche PLE score date (PreScore\_date) to PreMenarche report |
| PostMenReport->PostMenScore | Number of days from PostMenarche report to PostMenarche PLE score date (PostScore\_date) |
| 00A\_menarche\_report | ses-00A menarche report:  Premenarche = 0, Postmenarche = 1 |
| 01A\_menarche\_report | ses-01A menarche report:  Premenarche = 0, Postmenarche = 1 |
| 02A\_menarche\_report | ses-02A menarche report:  Premenarche = 0, Postmenarche = 1 |
| 03A\_menarche\_report | ses-03A menarche report:  Premenarche = 0, Postmenarche = 1 |
| 04A\_menarche\_report | ses-04A menarche report:  Premenarche = 0, Postmenarche = 1 |
| 05A\_menarche\_report | ses-05A menarche report:  Premenarche = 0, Postmenarche = 1 |
| 06A\_menarche\_report | ses-06A menarche report:  Premenarche = 0, Postmenarche = 1 |

Methods Section Summary:

To facilitate analysis of changes in Psychotic Like Experiences (PLE) severity from premenarche to postmenarche, we compared PQ-CB severity scores (mh\_y\_pps\_severity\_score; mh\_y\_pps.tsv) to predetermined last premenarche reports and first postmenarche reports to find matching sessions or sessions of best-fit, then calculated differences. To accomplish this for each participant, lists of sessions with PLE score data were compiled. Sessions matching and/or preceding the participant’s last premenarche report were separated out, and the score associated with the latest of these sessions was deemed the “best-fit” premenarche score. Similarly, sessions matching and/or following the participant’s first postmenarche report were separated out, and the score associated with the first of these sessions was deemed the “best-fit” postmenarche score. The premenarche PLE score was then subtracted from the postmenarche PLE score to get a Change Score.

References: