
ABCD Human Subject Study

Adolescent Brain Cognitive Development – ABCDSTUDY.org

Release Notes: Adolescent Brain Cognitive Development Study (ABCD) Data Release 2.0

Mobile Technology

<http://dx.doi.org/10.15154/1503209>

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List of Instruments

Name of Instrument	Short Name
ABCD Youth Fitbit Baseline	abcd_yfb01
ABCD Youth Fitbit Followup	abcd_yff01
ABCD Parent Fitbit Baseline	abcd_pfb01
ABCD Parent Fitbit Followup	abcd_pff01
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General Information

The following information refers to the Adolescent Brain Cognitive Development (ABCD) Study Data Release 2.0 available from <https://data-archive.nimh.nih.gov/abcd>. An overview of the ABCD Study is at <https://abcdstudy.org> and detailed descriptions of elements of the study are listed in <https://abcdstudy.org/scientists/protocols>.

This document describes the contents of various instruments available for download. To understand the context of this information, see *Release Notes ABCD README FIRST* and *Release Notes ABCD Imaging Instruments*.

As part of ABCD baseline assessment, 150 youth wore Fitbit Charge 2 devices for a 3-week period. They and a parent also completed questionnaires about their expectations and experience pre- and post- Fitbit data collection. At baseline, all ABCD youth and parent completed questions about screen time usage.

Youth Fitbit Baseline

A customized questionnaire was developed and given to participants in the Fitbit substudy when they enrolled before they had worn the Fitbit to establish a self-reported “baseline” of activity, sedentary behaviors, and sleep for participants in relation to their peers.

Youth Fitbit Followup

A customized questionnaire was developed and given to participants in the Fitbit substudy after they completed the 3-week Fitbit protocol to determine their use experience with the Fitbit and situations when they had to take the Fitbit off (“Followup”). The same questions given at “baseline” (before the Fitbit) were repeated at follow-up.

Parent Fitbit Baseline

A customized questionnaire was developed and given to parents in the Fitbit substudy when they enrolled before the youth had worn the Fitbit to establish a self-reported “baseline” of activity and sedentary behaviors of the youth in relation to their peers.

Parent Fitbit Followup

A customized questionnaire was developed and given to parents in the Fitbit substudy after youth had completed the 3-week Fitbit protocol to determine their use experience and opinions on whether the youth had changed their behaviors while wearing the Fitbit. Customized questions about daily eating/drinking habits of the youth were included in this questionnaire, although unrelated to the Fitbit protocol.

Fitbit Raw Data

Data tracked by Fitbit and compiled by Fitabase for each participant are stored as TGZ compressed files available for downloading. A complete description of the variables and how they are derived can be found here:

<https://www.fitabase.com/media/1748/fitabasedatadictionary.pdf>. Each file contains csv spreadsheets for each variable defined by Fitbit, aligned with recording date and time [mm/dd/yyyy hh:mm:ss], as follows:

(1) 30secondSleepStages: Sleep data are presented in 30 s epochs and comprise the three standard outputs available in 30 s from Fitabase. ‘Level’ describes each sleep stage (wake, light, deep, rem sleep). ‘ShortWakes’ describes awakenings that last less than 180 seconds;

these episodes are reported as 'wake' if part of a short wake is detected. 'SleepStage' combines 'Level' and 'ShortWakes' for true sleep stage time series.

(2) `heartrate_1min`: Mean heart rate data (sampled by Fitbit every 5 to 15 seconds, on average) for 1 min epochs are presented.

(3) `minuteCaloriesNarrow`: Total number of estimated calories burned per minute are presented.

(4) `minuteIntensitiesNarrow`: Categories of intensity of activity per minute are presented; there are 4 possible categories determined by Fitbit: 0 = Sedentary; 1 = Light; 2 = Moderate; 3 = Very Active

(5) `minuteMETsNarrow`: Estimated metabolic equivalents (METs) per minute, reflecting exercise intensity, are presented. Note that MET values are presented as multiples of 10 and need to be divided by 10 to get accurate values.

(6) `minuteSleep`: Classic sleep states assigned per minute. There are 3 possible categories: 1 = asleep, 2 = restless, 3 = awake.

(7) `minuteStepsNarrow`: Total number of steps taken per minute, as tracked by Fitbit.

Parent Screen Time Survey

This measure includes two customized questions about the overall amount of time that the youth spends using visual media (e.g. cellphone, iPod, videos), on a typical weekday and weekend day, not including time spent on school-related work.

Youth Screen Time Survey

This measure includes customized questions about the overall amount of time that the youth spends using visual media, on a typical weekday and weekend day. Media activities assessed include: (1) Watching TV shows or movies; (2) Watching videos (such as YouTube); (3) Playing video games on a computer, console, phone or other device; (4) Texting on a cell phone, tablet, or computer; (5) Visiting social networking sites like Facebook, Twitter, Instagram; (6) Video chat. Seven response options were: none, < 30 minutes, 30 minutes, 1 hour, 2 hours, 3 hours, and 4+ hours.

Sum Scores Mobile Technology Youth

Scores summed across electronic media categories are provided for youth screen time responses for weekday and weekend.