BOSTON ADOLESCENT NEUROIMAGING OF DEPRESSION & ANXIETY

BANDA 1.0 Data Release: Reference Manual

February 2023

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1.0 Overview

The Boston Adolescent Neuroimaging of Depression and Anxiety (BANDA) study was the first Human Connectome Project (HCP) of adolescent anxiety and depression. This study was part of the broader Connectomes Related to Human Diseases (CRHD) initiative subsumed under the parent HCP. BANDA is cross-listed under the HCP-Connectomes Related to Adolescent Anxiety and Depression project. This manual describes BANDA data release 1.0. De-identified data are available through the National Institutes of Mental Health Data Archive (NDA).

There were three primary goals of the BANDA study.

1. Collect a rich dataset of brain imaging, clinical, and cognitive/neuropsychological measures from anxious and/or depressed, as well as typical adolescents, and to make these data openly-available to the biomedical research community
2. Stimulate the development of resources for researchers to create adolescent-specific tools (e.g., white matter and functional connectivity atlases) to enhance the analysis of structural and functional brain development
3. Collect longitudinal clinical data to allow researchers to use these data to test predictive markers of the development, progression, and remission of depressive and anxious symptoms in adolescence

The BANDA study collected magnetic resonance imaging, clinical, and cognitive/neuropsychological measures from adolescents (imaging acquired at ages 14-17). Data were collected from 215 adolescents; 152 of whom had a current diagnosis of a DSM-5 (APA, 2013) anxious and/or depressive disorder.

2.0 Participating Sites

This project was a collaboration between five sites in the greater Boston Area.

Clinical and cognitive/neuropsychological characterization:
1) The Center for Anxiety and Related Disorders at Boston University (BU)
- Site-PI: Dr. Stefan Hofmann; Other Personnel: Megan Pinaire

2) The Center for Depression, Anxiety, and Stress Research at McLean Hospital at Harvard Medical School (McLean)
- Site-PIs: Dr. Diego Pizzagalli and Dr. Randy Auerbach; Co-Investigator: Isabelle Rosso; Other Personnel: Beth Cosby, Becca Kremens

3) The Child Cognitive Behavioral Therapy Program at Massachusetts General Hospital and Harvard Medical School (MGH)
- Co-I: Drs. Aude Henin and Dina Hirshfeld-Becker; Other Personnel: Flavia Vaz De Souza

Imaging: The Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital and Harvard Medical School (Martinos Center)
- PI: Dr. Anastasia Yendiki; Co-I: Drs. Bruce Rosen and Larry Ward; Other Personnel: Jonathan Wang, Robert Jones, and Dr. Viviana Siless

Recruitment, data curation, and study management: McGovern Institute for Brain Research at the Massachusetts Institute of Technology (MIT).
- PIs: Drs. John Gabrieli and Susan Whitfield-Gabrieli; Co-I: Dr. Satrajit Ghosh; Other Personnel: Isabelle Frosch, Nicole Lo, and Drs. Clemens Bauer Hoss and Nicholas Hubbard

3.0 Study Sample (Inclusion/Exclusion Criteria)

Adolescents were recruited from several sources including: psychological clinics, mass transit advertisements, newsletters to special interest groups, and social media.

General Inclusion Criteria:

- Adolescents age 14–17 years at time of brain imaging
- Parent and child fluent in English
- Safe to enter MRI
- Parent and child full-scale intelligence quotient (IQ) exceeded a score of 84 on the Wechsler Abbreviated Scale of Intelligence, 2nd Edition, verified during Session 1. This criterion was relaxed during the study and participants were allowed to matriculate into the study based upon an experimenter's clinical judgment.

General Exclusion Criteria:

- Premature birth (< 37 weeks, or < 34 for twins) or less than 5 lbs. at birth
- History of serious medical conditions or treatment for serious medical conditions including:
  - Two or more unprovoked seizures after age 5
  - Epilepsy
  - Multiple sclerosis
  - Cerebral palsy
  - Brain tumor
  - Diagnosis and/or treatment of rheumatoid arthritis, HIV, lupus, or diabetes
- History of serious head injury including:
  - Loss of consciousness for > 30 min
  - Amnesia for > 24 hr
  - Neuroimaging findings consistent with brain injury
  - Persistent post-concussive symptoms (>3 mo)
- Intellectual or developmental disorder
- MR-contraindications (e.g., metal implants or fragments) or braces
- Long-term use of steroids or immunosuppressants
- High blood pressure
- Serious endocrine issues
- Hospitalization > 2 days for neurological or cardiovascular disease
- Diagnosis of autism spectrum disorder
- Use of daily preventive migraine medication; migraine within 72 h of scan

Inclusion Criteria Specific to Prospective Clinical Adolescents:

- Current DSM-5 Anxiety and/or Depressive disorder, verified during Session 1
    - Where a present diagnosis was indicated as “Definite” or “In Partial Remission”

Exclusion Criteria Specific to Prospective Clinical Adolescents:

- Current or Lifetime DSM-5 disorders or psychiatric symptoms including:
    - Bipolar I, II, or NOS
    - Cyclothymia
    - Schizophrenia or reactive psychoses
    - Hypomanic, manic, or psychotic episode
- Acuity of psychiatric symptoms:
    - Psychiatric symptoms requiring hospitalization within 6 mo of screening
    - Imminent suicide risk identified during Session 1
    - Current alcohol or illicit substance use disorder

Exclusion Criteria Specific to Prospective Control Adolescents:

- Current DSM-5 disorders including:
    - Anxiety disorders
    - Depressive disorders
    - Posttraumatic stress disorder
    - Obsessive disorder
    - Eating disorders
    - Substance use disorders
    - Psychosis or Mania
- Lifetime DSM-5 disorders including:
    - Anxiety disorders
    - Depressive disorders
- Current or lifetime, long-term psychiatric medication use

4.0 Participant Schedule and Study Procedures

Participants passing preliminary screening for inclusion/exclusion criteria were referred to Session 1. Parents provided informed consent and adolescents assented during Session 1. Session 1 data were acquired from one of three sites: the Center for Anxiety and Related Disorders at Boston University; the Center for Depression, Anxiety, and Stress Research at McLean Hospital/Harvard Medical School; and the Child Cognitive Behavioral Therapy Program at Massachusetts General Hospital/Harvard Medical School. Session 1 also served to confirm or acquire additional information pertinent for determining inclusion/exclusion criteria.

Participants confirmed to meet inclusion criteria were referred to Session 2. Session 2 occurred at the Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital. Attempts were made to keep the time between Session 1 evaluations and Session 2 imaging to three weeks or less, although some participants completed Session 2 outside of the three-week window. Session 2 consisted of brain imaging and an eye-tracking experiment (acquired outside of scanner). A pre-scan questionnaire was also administered querying participant medication, supplement, or psychoactive substance use up to 24-hours before scanning. A post-scan questionnaire queried participants on their experience, motivation, and mood during brain imaging. The eye-tracking experiment is not detailed further here, as these data are not anticipated to be made publicly available due to inconsistencies in data acquisition.

Session 3 occurred approximately 6 months after Session 2. This session occurred online and consisted of a second acquisition of the majority of adolescent, self-report clinical measurements obtained from Session 1.

Session 4 occurred approximately 12 months after Session 2. Session 4 was designed to occur in-person. Due to local shelter-in-place orders and moratoriums on in-person, human subjects data collection during the COVID-19 pandemic, some participants completed Session 4 remotely (e.g., via videoconference). Session 4 consisted of (1) a third acquisition of the majority of adolescent, self-report clinical measurements; (2) a second acquisition of adolescent and parent structured clinical interviews; and (3) a second acquisition of parent-report clinical measures (parent report on self and on adolescent).

4.1 Non-MRI participant characterization

Structured diagnostic interviews

Current and lifetime psychiatric disorders were determined by trained staff who were, or were under the supervision of, licensed clinical psychologists. Diagnoses were given according to the Diagnostic and Statistical Manual of Mental Health Disorders, 5th Edition (APA, 2013).

1) **Kiddie Schedule for Affective Disorders and Schizophrenia Present and Lifetime Version (K-SADS)**. Adolescents and participating parents completed the K-SADS, a semi-structured diagnostic interview assessing current and lifetime mental disorders (Kaufman et al. 1997). At study onset, the K-SADS had not yet adopted DSM-5 criteria. Where required, study clinicians added prompts to address potential changes to disorder classifications. Thus, the K-SADS was adapted to provide DSM-5 diagnoses.
2) **Columbia Suicide Severity Rating Scale.** Adolescents were interviewed using the Columbia Suicide Severity Rating Scale (Posner et al. 2011). If an adolescent was deemed to be at imminent clinical risk (e.g., endorsed suicidal intent) by the interviewing researcher/supervising clinical psychologist, they were unenrolled from the study and appropriate measures were taken.
3) **Family History Screen**. Participating parents completed the structured Family History Screen (Weissman et al. 2000). They were queried on the presence of psychiatric disorders in context of their adolescent's first- and second-degree relatives.

Adolescent self-report clinical measures

Seven self-report measures were selected to characterize dimensions of adolescents' moods, personality traits, thoughts, and behaviors. An additional measure assessed adolescent history of stressful life experiences.

1) **Behavioral Inhibition and Activation Questionnaire.** 24-item, self-report questionnaire assessing tendencies for avoidance- or approach-motivated behaviors (Carver and White 1994).
2) **Mood and Feelings Questionnaire.** 33-item, self-report questionnaire assessing recent (within two weeks framing) depressive symptomatology (Angold et al., 1995).
3) **Revised Child Anxiety and Depression Scale.** 47-item, self-report questionnaire assessing multiple dimensions of child and adolescent anxious and depressive symptomatology (de Ross, Gullone, and Chorpita 2012).
4) **NEO Five Factor Inventory-Neuroticism Subscale.** Twelve self-report items were adapted from the Neuroticism subscale of the NEO-FFI (McCrae and Costa 2011).
5) **Risky Behavioral Questionnaire for Adolescents.** 20-item, self-report questionnaire assessing the frequency of an adolescent's engagement in recent (within one month framing) risky behaviors (Auerbach and Gardiner 2012).
6) **Snaith-Hamilton Pleasure Scale.** 14-item, self-report questionnaire assessing one's ability to experience pleasure (Snaith et al. 1995).
7) **State-Trait Anxiety Inventory.** 40-item, self-report questionnaire assessing anxious symptomatology at the present moment and more general anxious symptomatology (Spielberger 1983).
8) **Stress and Adversity Inventory for Adolescents.** Computer-based, self-report interview querying participants regarding their exposure to and perceptions of potential life stressors (Slavich et al. 2019). This automated interview was structured with branching logic; after a participant endorsed the presence of a particular life stressor, additional prompts were delivered to query the severity, frequency, timing, and duration of exposure to that stressor.

Parent self-report clinical measures

1) **Mood and Anxiety Symptoms Questionnaire.** 62-item, self-report measure of anxiety and depressive symptoms (Watson and Clark, 1991).
2) **State-Trait Anxiety Inventory.** 40-item, self-report questionnaire assessing anxious symptomatology at the present moment and more general anxious symptomatology (Spielberger, 1983).

Parent adolescent-report clinical measures

1) **Child Behavior Checklist.** 113-item, retrospective, parent-report measure on their child's problem thoughts, behaviors, attitudes (Achenbach, 1991).
2) **Mood and Feelings Questionnaire, Parent Report.** 34-item, parent-report questionnaire assessing recent (within two weeks framing) depressive symptomatology of their child (Angold et al., 1995)
3) **Retrospective Measure of Behavioral Inhibition.** 18-item, retrospective, parent-report questionnaire assessing their child's temperament between the ages of 2-6 years (Gladstone and Parker, 2006).

Cognitive and neuropsychological measures

Adolescents completed 9 computerized measures from standardized batteries; five from the NIH toolbox (Gershon et al., 2013; Heaton et al., 2014), four from the University of Pennsylvania Computerized Neuropsychological Test Battery (Gur et al., 2010). Tests and putative cognitive/neuropsychological domains assessed were:

1) **NIH Toolbox Dimensional Card Sort Task.** Cognitive flexibility/attention.
2) **NIH Toolbox Flanker Task.** Inhibition/attention.
3) **NIH Toolbox List Sorting Task.** Working memory.
4) **NIH Toolbox Oral Reading Recognition Task.** Reading decoding.
5) **NIH Toolbox Pattern Comparison Task**. Processing speed.
6) **Penn Delay Discounting Task.** Impulsivity/self-regulation.
7) **Penn Emotion Recognition Task.** Facial emotion recognition.
8) **Penn Matrix Reasoning Task.** Non-verbal reasoning.
9) **Penn Word Memory Task.** Verbal episodic memory.

Adolescents and participating parents completed a two-subtest **Wechsler Abbreviated Scale of Intelligence**, 2nd Edition allowing for the estimation of normative Full-scale Intelligence Quotients, and Verbal Comprehension and Perceptual Reasoning abilities (Wechsler, 2011).

Additional characterization

Adolescent self-report on his/her relative physical development, primary- and secondary-sex characteristics was acquired via the **Tanner Sexual Maturation Scale** (Taylor et al., 2001). The **Chapman Handedness Inventory** was administered to assess lateral-hand dominance of the adolescent (Chapman and Chapman, 1987). **Demographic** data (e.g., race, ethnicity, parental education, household income) were obtained via parent report, along with data on adolescents' current psychiatric medication use.

4.2 MRI characterization

Acquisition protocol

Data were collected at the Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital using a Siemens Prisma 3T scanner with a 64-channel head coil. Comprehensive information on hardware, sequences, and acquisition harmonization with other HCP imaging projects is described in Siless et al. 2020. Protocol time was 1 h 36 min, in-scanner time typically averaged 2 hours. The protocol consisted of:

- **Diffusion MRI** with 1.5 mm isotropic resolution with multi-band acceleration factor of 4, 92/93 directions in each shell (b=1500 and 3000 s/mm^2) acquired four times: twice with AP and twice with PA phase encoding directions. 28 b=0 s/mm^2 volumes were interspersed in total within all four runs.
- **Resting fMRI** with 2.0 mm isotropic resolution multi-band acceleration factor of 8, TR= 800 ms, and TE=37 ms. Four runs were acquired: twice with AP and twice with PA phase encoding directions.
- **Task fMRI** with 2.0 mm isotropic resolution multi-band acceleration factor of 8, TR= 800 ms, and TE=37 ms. Three tasks were acquired, each with an equal number of runs for AP and PA phase encoding directions.
- **T1w** (MPRAGE; Mugler et al., 1990) and **T2w** (TSE; Mugler et al., 2000) images with 0.8 mm isotropic resolution embedded with volumetric navigators for prospective motion correction (Tisdall et al., 2012)

Three imaging protocols were used throughout the study and are detailed in Appendices 1, 2, and 3.

Functional imaging tasks

Task training and presentation followed a standardized protocol to ensure participants received a similar study experience (see Siless et al. 2020). Button boxes placed in an adolescent's reported dominant hand were used to register responses via index- or middle-finger button press. Comprehensive descriptions of functional imaging tasks may be found in Hubbard et al., 2020. Descriptions below were taken from Hubbard et al., 2020 or Siless et al., 2020.

Emotion Interference Task (EIT): Event-related task presenting adolescents with pairs of human face images and pairs of house images on orthogonal visuospatial axes. The EIT was adapted from Fales and colleagues (2008; also Vuilleumier et al., 2001; Wojciulik et al., 1998). A similar adaptation of this task is used by the HCP-Dimensional Connectomes of Anxious Misery project. Adolescents were instructed to determine whether images on a target visuospatial axis were identical or different via index- or middle-finger button press. A cue was presented at the beginning of each run indicating the visuospatial axis on which target image pairs would appear. Adolescents were

instructed to attend and respond to image pairs on the target axis, and ignore image pairs on the orthogonal axis. For each trial, face image pairs featured actors portraying a single expression type (i.e., fearful or neutral). EIT trials were structured to feature four conditions: attend to neutral face images (ignore house images), attend to fearful face images (ignore house images), ignore neutral face images (attend to house images), ignore fearful face images (attend to house images). Each condition was presented for 24 trials, across four runs. Each run lasted 3 min 54 s (total 15 m 36 s).

Emotion Processing Task (EPT): Block-design task presenting adolescents with human face images, or fruit or vegetable images. The EPT was adapted from Hariri and colleagues (2000). Adaptations of this task were also used by the HCP-Young Adult (Barch et al., 2013) and the HCP-Lifespan Development projects (Somerville et al., 2018), as well as the HCP-Perturbation of the Treatment Resistant Depression Connectome by Fast-Acting Therapies project. For each trial, adolescents were instructed to indicate via index- or middle-finger button press which of two images presented at the bottom of the display was identical to the single image presented at the top of the display. Each face image trial consisted of actors portraying a single expression type (i.e., happy, angry, sad, fearful, or neutral). Face images were adapted from Radboud (Langner et al. 2010) and NimStim (Tottenham et al. 2009) databases. Fruit and vegetable (i.e., object) images were adapted from Chai and colleagues (2015). Blocks consisted of 6 trials of a single image condition (i.e., happy, angry, sad, fearful, neutral, or objects). Six blocks were acquired for each image condition across a total of two EPT runs. Each run lasted 5 min 24 s (total 10 min 48 s). *Critical Note*: the sad face image condition was added after the first 17 participants, thus the first 17 participants have 6 fewer blocks than subsequent participants.

Incentive Processing Task (IPT): Block-design task presenting adolescents with the opportunity of winning (reward) or losing (loss) actual money. The IPT was adapted from Delgado and colleagues (Delgado et al., 2000). Similar adaptations of the IPT are used by the HCP-Young Adult (Barch et al., 2013) and HCP-Lifespan Development projects (Somerville et al., 2018); as well as the CRHD projects: (1) Dimensional Connectomes of Anxious Misery and, (2) Mapping Connectomes for Disordered Mental States. Adolescents were instructed to guess whether a forthcoming number to appear on the screen would be greater or less than 5. Guesses were registered via index- or middle-finger button press. Reward and loss feedback was fixed so that a block contained mostly reward feedback or mostly loss feedback. There were 8 trials per block, 8 blocks per run (4 reward blocks, 4 loss blocks), and a total of two IPT runs. Each run lasted 2 min 52 s (total 5 min 44 s).

5.0 BANDA 1.0 Data Release

5.1 Getting Data and using NDA

Requesting Access to NDA

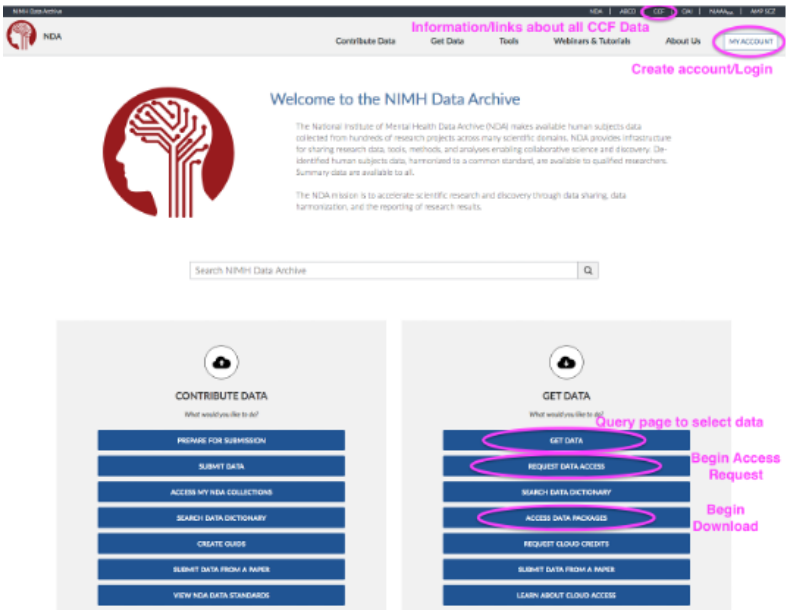
Connectomes Related to Human Disease (CRHD) projects like HCP-EP and BANDA, and the Lifespan HCP (Aging & Development) projects that are managed and data processed by the Connectome Coordination Facility (CCF) are being released through the NIMH Data Archive (NDA), a data repository funded by the National Institutes of Health (NIH) and are currently only being shared through that platform (not on the cloud or other data sharing platforms).

Requesting NDA access is a multistep process that may take some time, possibly a few weeks, to gather the necessary information and signatures, especially if you are at an institution that must establish the eligibility requirements. Full instructions for obtaining access on NDA, including screenshots of the process, are available in the Lifespan HCP 2.0 Release Data Access & Download Instructions.

Once approved, access is valid for one full year. To maintain access, a renewal request should be submitted through the same process.

Selecting Data for Download

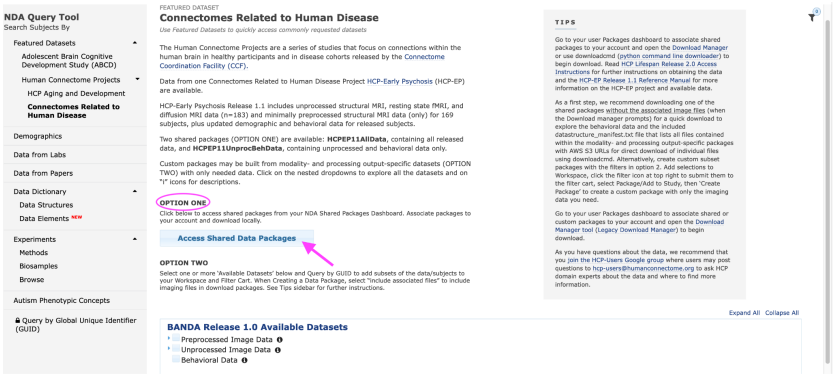
To obtain data from the BANDA Release 1.0, go to the Connectomes Related to Human Disease Featured Datasets query page. You can also get to this page by selecting “Get Data” from the NDA home page (pictured right), then selecting “Human Connectome Projects > Connectomes Related to Human Disease” at the top left of the query page.



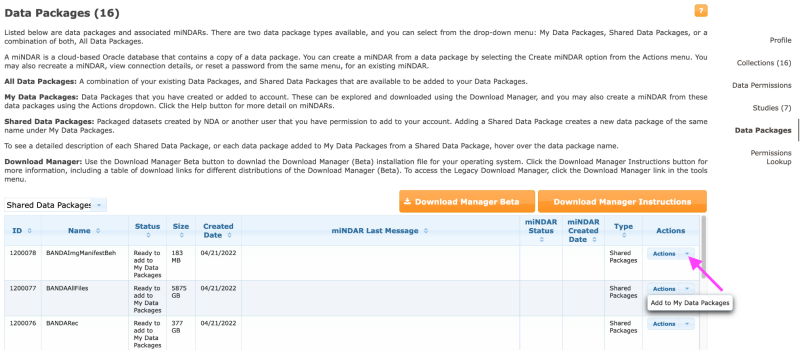
On the Connectomes Related to Human Disease Featured Datasets query page, the user has two options for accessing the BANDA data. Read through the next section and choose the one that best fits your needs.

OPTION ONE

OPTION ONE accesses 3 premade, BANDA Release 1.0 shared data packages that we recommend as a starting point for download for many users. The **BANDAAllFiles** (5 TB) package contains all released data, **BANDARec** (497 GB) contains recommended processed imaging data, and **BANDAImgManifestBeh** (242 MB) contains Minimally Preprocessed and unprocessed imaging metadata (no imaging data files), including the datastructure_manifest.txt file containing AWS S3 URLs for all released data files useful for command line downloading of specific files of interest. All 3 packages contain the full released clinical and behavioral data.



Click on the “Access Shared Data Packages” button to take you to your Data Packages page.
In the Actions column in the row of the package you are interested in, select “Add to My Data Packages” (pink arrow). It will take some time (seconds to several minutes depending on size) to add the package to your account and there should be a notification at the top of the page when it is complete.

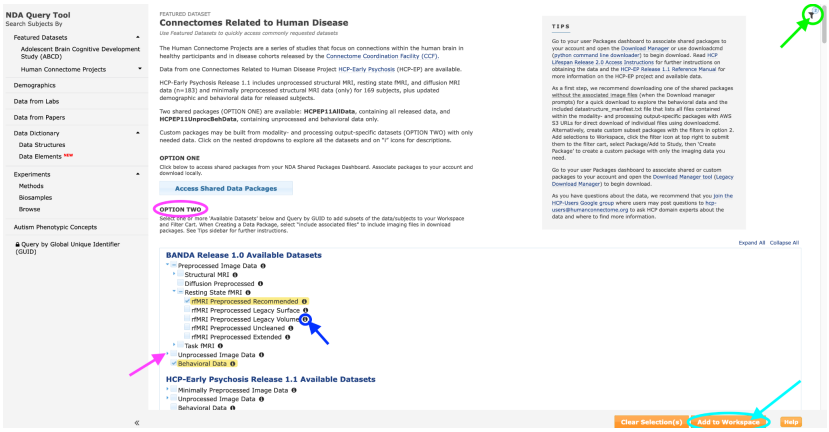


In the meantime, you can proceed with downloading and setting up the Download Manager or nda-tools for downloading on the command line. Full instructions for using these download options are available in the Lifespan HCP 2.0 Release Data Access & Download Instructions.

OPTION TWO

OPTION TWO allows the user to select modality- and processing output-specific "HCP-style package" filters to access part of the released data by clicking the nested dropdown options under BANDA Release 1.0 Available Datasets.

On the Connectomes Related to Human Disease Featured Datasets query page, under OPTION TWO, click the triangles next to the data types to reveal all the subset options (pink arrow). Click the black "i" information buttons (blue arrow) to see a description of the subset package. The packages were created to be harmonized with those available in the Lifespan HCP 2.0 Release. Further descriptions of the processed data package types are available in the Lifespan HCP 2.0 Release Data Access & Download Instructions.

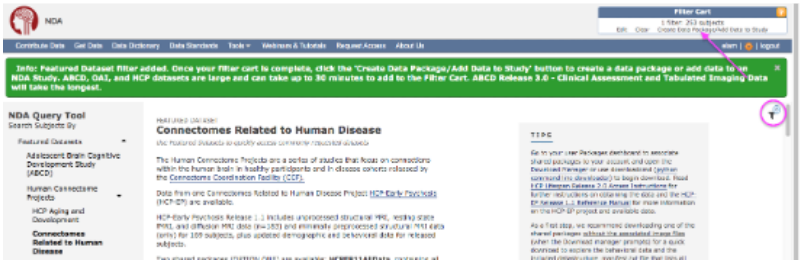


Select the checkboxes of the subsets of the data you are interested in and click the "Add to Workspace" button at the bottom of the page (cyan arrow).

Note: The OPTION TWO subset package filters filter for data from all released subjects and are additive (if you make more than one selection), so total data sizes may become large. If you are interested in downloading one or a few subjects, see Filtering by Subjects in the Lifespan HCP 2.0 Release Data Access & Download Instructions.

Click on the Filter funnel icon at the top right (green arrow) showing the number of filters you added. This will show your Workspace, click "Submit to Filter Cart" at the bottom. It can take several minutes to update the Filter Cart at the top right.

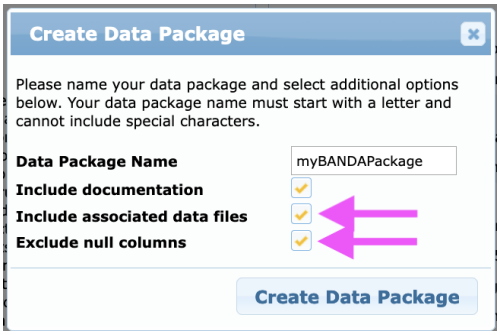
When finished, click on "Create Data Package/Add to Study" (pink arrow) at the bottom of the Filter Cart box at the top right.



On the Data Packaging page, you'll see the data you selected listed in NDA Data Structure categories (mostly useful for Behavioral data, click on the "i" buttons to see a tabular preview of the data).

Click the "Create Data Package" button to create your custom package.

Enter a Package Name, be sure to click the "Include associated data files" checkbox (MRI data are considered associated data files), and "Exclude null columns" (pink arrows), so the behavioral data will not have extraneous columns for unused variables.



Click "Create Data Package". The process of creating the package will take several minutes and can be tracked from your Packages Dashboard, with "My Packages" selected at the top left. You may need to refresh the page to see the status change.

While you are waiting, follow the instructions in the Lifespan HCP 2.0 Release Data Access & Download Instructions to download the Java Download Manager or command line download tools. You can also track package creation within the Download Manager GUI by clicking the Reload Packages button until your package is listed as ready to download.

Files and Directory Structure

The user may choose to download the MRI unprocessed or preprocessed data and the behavioral data by selecting prepackaged data or choose to create their own custom package as described above.

The data package will download to the Save To: location on your file system with the top directory name matching the package name (<YourPkgName>, or, e.g., BANDARec).

If your package contains Minimally Preprocessed Image Data, and Unprocessed Image Data, the high-level <YourPkgName> directory will contain:

<YourPkgName>/	
fmriresults01/	Preprocessed data
fmriresults01.txt	Info on preprocessing pipelines run (per subject)
imagingcollection01/	Unprocessed data
imagingcollection01.txt	Listing of per subject data (by modality) in collection
md5_values.txt	md5 checksums for download verification
package_info.txt	Info on NDA filters used to create package
README.pdf	automatic README from NDA

We are using the NDA data structures fmriresults01 and imagingcollection01 (full directory structure described in the Appendix: Release File Names and Directory

Structure to organize the preprocessed and unprocessed, respectively, per subject data into the same directory structure as that of previously released HCP Young Adult data, so that it is compatible with the expected inputs and outputs of processing through the HCP Pipelines.

The fmriresults01/ directory contains the preprocessed data for all modalities for the subjects available.

The imagingcollection01/ directory contains unprocessed data of all modalities.

Under these two directories, are high level <BANDA001_MR>, directories and a manifest directory. Manifests are JSON files (*.json) that organize related data (e.g. unprocessed REST1 data) into a structured set of files to be downloaded according to the directory structure specified. In this case, we have used the manifests to organize the data into per subject, unprocessed and processed "packages" as was done for the HCP Young Adult Study in the directory structure output by and required for input to the HCP pipelines. When you download CCF data (including BANDA data) from NDA it will be in this HCP-style file structure.

Behavioral Data Structures

Behavioral and clinical measures were mapped to the NDA behavioral data structures listed below. If you include Behavioral data in your download package, tab-delimited text files for all BANDA behavioral structures will be included in the <YourPkgName>/ directory (e.g. er4001.txt).

NDA Structure	Measure Name
ndar_subject01	Research Subject
bisbas01	Behavioral Inhibition Scale/Behavioral Activation Scale
cbcl01	Child Behavior Checklist (CBCL) 6-18
chaphand01	Chapman Handedness
cssrs01	Columbia Suicide Severity Rating Scale
dccs01	Dimensional Change Card Sort Test (DCCS)
deldisk01	Delay Discounting Task
demographics02	Demographics
er4001	Penn Emotion Recognition Task
fhs01	Family History Screen
flanker01	Flanker Task
ksads_diagnoses01	Kiddie-Sads Summary Diagnoses
ksads_diagnosesp201	Kiddie-Sads Summary Diagnoses. Part II
lswmt01	NIH Toolbox List Sorting Working Memory Test
masq01	Mood and Anxiety Symptom Questionnaire
mfq01	Moods and Feelings Questionnaire
nffi01	NEO-Five Factor Inventory
orrt01	NIH Toolbox Oral Reading Recognition Test

pcps01	Pattern Comparison Processing Speed
pmat01	Penn Matrix Reasoning Test
pwmt01	Penn Word Memory Test
rbqa01	Risky Behavior Questionnaire for Adolescents
rcads01	Revised Child Anxiety and Depression Scale (RCADS)
rmbi01	Retrospective Measure of Behavioral Inhibition
shaps01	Snaith-Hamilton Pleasure Scale
stai01	State-Trait Anxiety Inventory for Adults
strain01	Stress and Adversity Inventory
tanner_sms01	Tanner Sexual Maturity Scale
wasi201	WASI-2

Additional Documentation:

Completeness documents:

BANDA1.0_Completeness.csv: Overview of available clinical, behavioral and imaging data for all adolescent subjects and measures collected for T1,T2,T3 and T4.

BANDA1.0_T1_Missingness.png: Per subject missing/uncollected data for session 1 (timepoint 1, T1)

BANDA1.0_T2_Missingness.png: Per subject missing/uncollected data for session 2 (timepoint 2, T2)

BANDA1.0_T3_Missingness.png: Per subject missing/uncollected data for session 3 (timepoint 3, T3)

BANDA1.0_T4_Missingness.png: Per subject missing/uncollected data for session 4 (timepoint 4, T4)

Crosswalk documents:

BANDA1.0_Crosswalk.csv: Contains information about mappings, identifiers, and project descriptions of available behavioral measures and variables. Use as a data dictionary to decode NDA structures and elements.

6.0 References

Achenbach, T. 1991. *Manual for the Child Behavior Checklist/4-18 and 1991 Profile.* Department of Psychiatry, University of Vermont.

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