README file for Public Update
MIDUS Refresher 1 Project 5
Neuroscience Data
July 2021

*** It is important to read through this document carefully ***
*** prior to using the revised data and documentation. ***

This document outlines a number of revisions, improvements, and updates that have been made to the MIDUS Refresher 1 Project 5 (MR1P5) Neuroscience data since the last version published in 2018.

Note: The revised data and documentation are intended to REPLACE all the files associated with previous releases of the MR1P5 data and documentation.

A. Changes to the Dataset

This revised MR1P5 dataset contains 138 cases and 1897 variables (the prior version of this dataset MR_P5_N138_2018301 contained 493 variables). The new dataset includes additional measures of brain structure derived from BRAVO T1-weighted magnetic resonance imaging (MRI) scans, including measures of volume, cortical thickness, cortical curvature, and cortical surface area calculated using FreeSurfer software (v. 5.3.0), hippocampal subfield and amygdala nuclei segmentations calculated using FreeSurfer's hippocampal module (v. 6.0) brain age estimates calculated using the algorithm published by Cole and colleagues (2017), and diffusion tensor imaging measures of white-matter microstructure extracted from diffusion-weighted imaging MRI scans. For published descriptions of the diffusion-weighted imaging processing, please see (Pedersen et al., 2021).

The dataset also includes: (1) self-report measures of emotion, emotion regulation, anxiety, and empathy; (2) psychophysiological measures including corrugator and zygomatic facial electromyography and eyeblink startle magnitude of emotional reactivity and recovery in response to the presentation of negative, neutral, and positive pictures; (3) reaction time and accuracy measures obtained during the psychophysiology paradigm's task; (4) cognitive data obtained via pen-and-paper and CANTAB (http://www.cambridgecognition.com/) cognitive research software; as well as (6) diffusion tensor imaging measures of white-matter microstructure derived from diffusion-weighted imaging (DWI) scans.

The updated dataset: *MR_P5_DATA_N138_20210813*

B. What is the Structure of the P5 Dataset?

This file is an SPSS dataset comprised of self-report data (self-administered questionnaires),

behavioral responses to the task during the psychophysiology paradigm, summary measures of psychophysiological data, and measures of brain structure and brain-predicted age derived from MRI scans for 138 cases from the National and Milwaukee Refresher samples. Variables have been named according to MIDUS variable naming and coding conventions. All variables include labels to aide interpretation. Value labels have been applied where appropriate. Discrete missing values have also been defined and a "REFUSED/MISSING" label applied.

Variable naming conventions are described in the following document:

- ***MR_P5_VARIABLE_NAMES_20210422***

The fourth character of the variable name is a letter that identifies the type, or name, of the instrument used to collect the data. The P5 Instruments are designated by the indicated letters:

- S = Self-reports
- B = Startle Eyeblink
- C = Corrugator EMG
- L = Zygomaticus EMG
- K = Heart Rate Variability
- R = Response Times
- A = Response Accuracy
- N = CANTAB Cognitive measures
- D = Cube & Paper Test
- F = Free Recall
- T = Picture Ratings
- P = Participant Characteristics
- H = Handedness
- O = Hearing Test
- I = Filter for completed MRI
- E = Extracted Structural Brain Measurements
- W = Extracted Diffusion Tensor Imaging Measurements

Remaining characters differ for each measure (i.e., are nested within preceding 3 characters).

C. What Additional Files Are Available?

1. Information regarding instruments used to collect data and data processing procedures is available:
   - ***MR_P5_INSTRUMENTS_20210422***

2. Detailed documentation of the self-report/questionnaire measures collected in P5 is available:
   - ***MR_P5_DOCUMENTATION_OF_SCALES_20190509***

3. An overview of the procedures and timing of tasks during the psychophysiology session is available:
   - *MR_P5_DOCUMENTATION_OF_PSYCHOPHYSIOLOGY_20190802*

4. An overview of the CANTAB cognitive assessments is available:
   - *MR_P5_DOCUMENTATION_OF_CANTAB_20190802*

5. A sample acknowledgment text to be included in publications utilizing this data is available:
   - *MR_P5_ACKNOWLEDGEMENT_TEXT_20171214*

6. Information regarding scanning procedures and the processing of T1-weighted and diffusion-weighted scans is available:
   - *MR_P5_DOCUMENTATION_OF_BRAIN_MEASURES_20210422*

Because participation in P5 (Neuroscience) was contingent upon first participating in the P4 (Biomarkers) component of MIDUS Refresher, see the *MIDUS REFRESHER Biomarkers* documentation for basic information about the sample and recruitment. An additional requirement for the Refresher was that all participants in P5 had to be able to participate in both the psychophysiology and imaging sessions. This meant that all participants had to pass MRI screening criteria (no history of neurological disorders, no magnetic metal or medical devices in the body, no claustrophobia, able to lay on back for two hours, etc.).

D. Where Can I Access the Raw Imaging Files?

Access to the MIDUS Refresher raw MRI data (structural, task functional, resting state functional, diffusion-weighted imaging, and resting perfusion) is subject to restricted access conditions. Interested researchers may request access to these materials by sending an email to both Stacey Schaefer (stacey.schaefer@wisc.edu) and Barry Radler (bradler@wisc.edu).

E. Publications from this MIDUS REFRESHER dataset using this instrumentation:

Grupe, D. W., Schaefer, S. M., Lapate, R. C., Schoen, A. J., Gresham, L. K., Mumford, J. A., & Davidson, R. J. (2018). Behavioral and neural indices of affective coloring for neutral social stimuli. *Social Cognitive and Affective Neuroscience, 13*(3), 310-320.

Pedersen, W.S., Dean, D.C., Adluru, N., Gresham, L.K., Lee, S.D., Kelly, M.P., Mumford, J.A., Davdison, R.J., & Schaefer, S.M. (2021). Individual variation in white matter microstructure is related to better recovery from negative stimuli. In press at *Emotion*

Pedersen, W. S., Schaefer, S. M., Gresham, L. K., Lee, S. D., Kelly, M. P., Mumford, J. A., Oler, J. A., & Davidson, R. J. (2020). Higher resting-state BNST-CeA connectivity is associated with greater corrugator supercilii reactivity to negatively valenced images. NeuroImage, 207, Article 116428.

Urban-Wojcik, E.J., Lee, S., Grupe, D.W., Quinlan, L., Gresham, L., Hammond, A., Charles, S.T., Lachman, M.E., Almeida, D.M., Davidson, R.J., & Schaefer, S.M., (2021). Diversity of daily activities is associated with greater hippocampal volume. In press at *Cognitive, Affective, and Behavioral Neuroscience.*

Yu, Q., King, A.P., Yoon, C., Liberzon, I., Schaefer, S.M., Davidson, R.J., & Kitayama, S. (2021). Interdependent self-construal predicts increased gray matter volume of scene processing regions in the brain. Biological Psychology. 161:108050. DOI: 10.1016/j.biopsycho.2021.108050.

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Please report any errors or inconsistencies you find in the data or documentation to
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