

VARIABLE NAMES & EXPLANATIONS FOR MIDUS 3 PROJECT 5

Character 1: MIDUS Sample

C = MIDUS 3

Character 2: Project

5 = Project #5

Character 3: Measure

S = Self-reports

B = Startle Eyeblink

C = Corrugator EMG

L = Zygomaticus EMG

K = Heart Rate Variability (QRSTool and CMetX – used in MR1 only)

V = Heart Rate Variability (NeuroKit2 – used in M3)

R = Psychophysiology Emotional Response Task - Response Times

A = Psychophysiology Emotional Response Task - 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 = General MRI Information

E = Extracted Structural Brain Measurements

W = Extracted Diffusion Weighted Imaging Measurements

Remaining characters differ to build discrete variables, but all within the given measure type set by character 3.

For Ch3 = S (i.e., Self-reports):

Character(s) 4 (& 5): Scale

DP = Dispositional Positive Affect Scale (DPES)

P = Positive and Negative Affect Schedule (PANAS)

IR = Interpersonal Reactivity Index (IRI)

S = Spielberger State-Trait Anxiety Scale (STAI)

E = Emotion Regulation Questionnaire (ERQ)

For Ch4 & 5 = DP (i.e., DPES):

Character 6: Subscale

C = Contentment

J = Joy

H = Hope

L = Love/Attachment

D = Desire

O = Compassion

P = Pride

G = Gratitude

A = Amusement

W = Awe

I = Interest

T = All scales summary score
Characters 7 & 8: Measure
None = Summary Measures
Numbers = Individual Questions

For Ch4 = P (i.e., PANAS):

Character 5: Time Point

1 = PANAS-Now, Time 1 (prior to Psychophysiology Emotional Response Task)
2 = PANAS-Now, Time 2 (after Psychophysiology Emotional Response Task)
3 = PANAS-Now, Time 3 (prior to fMRI Emotional Response Task)
4 = PANAS-Now, Time 4 (after fMRI Emotional Response Task)
G = PANAS-General

Character 6: Subscale

P = Positive Affect
N = Negative Affect

Characters 7 & 8: Measure

None = Summary Measures
Numbers = Individual Questions

For Ch4 & 5 = IR (i.e., IRI):

Characters 6 & 7: Subscale

PT = Perspective-Taking Scale
FS = Fantasy Scale
EC = Empathic Concern Scale
PD = Personal Distress Scale
None = All scales summary score

Characters 8 & 9: Measure

None = Summary Measures
Numbers = Individual Questions

For Ch4 = S (i.e., STAI):

Character 5: Time Point

1 = STAI-X1, Time 1 (prior to Psychophysiology Emotional Response Task)
2 = STAI-X1, Time 2 (after Psychophysiology Emotional Response Task)
3 = STAI-X1, Time 3 (prior to fMRI Emotional Response Task)
4 = STAI-X1, Time 4 (after fMRI Emotional Response Task)
T = STAI-X2, Trait anxiety form of STAI

Characters 6 & 7: Measure

None = Summary Measures
Numbers = Individual Questions numbers.

For Ch4 = E (i.e., ERQ):

Character 5: Subscale

R = Reappraisal
S = Suppression

Characters 6 & 7: Measure

None = Summary Measures
Numbers = Individual Questions numbers.

For Ch3 = B (i.e., Eyeblick Startle):

C5B = Number of valid eyeblick startle responses measured over entire paradigm.

C5BF = Filter for good eyeblick startle response data

Character 4: Picture Valence

N = Negative
O = Neutral
P = Positive

Character 5: Probe Time

E = Early (2900 ms after picture onset)
M = Mid (4400 ms after picture onset)
L = Late (5900 ms after picture onset)

Character 6: Metric

A = Amplitude (includes only responses, so assesses height of response)
M = Magnitude (includes no responses as a zero, so averaging will be affected by no responses)

For Ch3 = C or L (i.e., Corrugator and Zygomaticus EMG):

C5C = Filter for good corrugator data (bad corrugator data might exhibit high levels of noise and/or artifact)

C5L = Filter for good zygomatic data (bad zygomatic data might exhibit high levels of noise and/or artifact)

Character 4: Picture Valence

N = Negative
O = Neutral
P = Positive

Character 5: Time

E = Early (1-4 seconds following picture onset)
M = Middle (5-8 seconds following picture onset)
L = Late (9-12 seconds following picture onset)

For Ch3 = V (i.e., Heart Rate Variability – processed with NeuroKit2):

Character 4: Session Type

1 = Psychophysiology baseline
2 = MRI resting state

Character 5:

Q = Data Quality Filter
B = Beats Removed Filter
M = Total time masked out in seconds
I = Number of IBI's used
T = Time measures
F = Frequency measures
N = Nonlinear measures

For Ch5 = I (Number of IBI's used):

Character 6:

T = Total IBIs
N = IBIs used for Nonlinear stats

For Ch5 = T (i.e., Time measures):

Characters 6 & 7:

MH = Mean Heart Rate
MI = Mean Interbeat Interval
SN = Standard Deviation of RR beats (SDNN)
RM = Root Mean Squared Successive Differences of RR intervals (RMSSD)
PN = Percent of RR intervals over 50 milliseconds (pNN50)
SD = Standard deviation of successive differences between RR intervals (SDSD)

For Ch5 = F (i.e., Frequency measures):

Characters 6 – 9:

LF = Spectral power of low frequencies (.04-.15 Hz)

HF = Spectral power of high frequencies (.15-.4 Hz)

TP = Total spectral power

LFHF = Ratio obtained by dividing the low frequency power by the high frequency power

LFN = Normalized low frequency, dividing the low frequency power by the total power

HFN = Normalize high frequency, dividing the high frequency power by the total power

LNHF = Log transformed HF

For Ch5 = N (i.e., Nonlinear measures):

Characters 6 – 8:

CV = Cardioagal index (CVI) (Toichi, 1997)

CS = Cardiosympathetic Index (CSI) (Toichi, 1997)

CA = Contributions of heart rate accelerations to short-term HRV (Piskorski, 2011)

CD = Contributions of heart rate decelerations to short-term HRV (Piskorski, 2011)

SDA = Short term variance of contributions to accelerations (Piskorski, 2011)

SDD = Short-term variance of contributions to decelerations (Piskorski, 2011)

For Ch3 = R or A (i.e., Psychophysiology Emotional Response Task reaction time and accuracy):

Character 4: Picture Valence

N = Negative

O = Neutral

P = Positive

For Ch3 = N (i.e., CANTAB cognitive assessments):

Character 4: Test type

M = Motor Screening Task (MOT)

I = Intra-Extra Dimensional Set Shift (IED)

A = Affective Go/No-Go (AGN)

S = Information Sampling Task (IST)

T = Attention Switching Task (AST)

E = Emotion Recognition Task (ERT)

G = Cambridge Gambling Task (CGT)

For Ch4 = M (i.e., MOT):

Character 5: Measure

E = Mean Error

L = Mean Latency

For Ch4 = I (i.e., IED):

Character(s) 5 (& 6): Measure type

Numbers = Summary stage-related measures. See table in

M3_P5_DOCUMENTATION_OF_CANTAB_20260206 for list of measures

T = Totals

C = Calculated Measures
S = Stages

For Ch5 = T or C:

Characters 6 & 7: Measure

Numbers = Total measures. See table in
M3_P5_DOCUMENTATION_OF_CANTAB_20260206 for list
of measures

For Ch5 = S:

Character 6: Type

T = Trials per stage

E = Errors per stage

Character 7: Stage Number

Numbers = Stages #1-9

For Ch4 = A (i.e., AGN):

Character 5: Measure

R = Affective Response Bias (Mean)

L = Mean Correct Latency

T = Total Incorrect (Commissions/Omissions errors)

For Ch5 = L:

Characters 6 & 7: Trial Type

Numbers = Condition (Positive/Negative/Neutral, Shift/Non-shift)

For Ch5 = T:

Character 6: Total Incorrect Responses/Non-responses

M = Total Commissions

O = Total Omissions

Character 7: Trial Type

None = Total

Numbers = Condition (Positive/Negative/Neutral, Shift/Non-shift)

For Ch4 = S (i.e., IST):

Characters 5 & 6: Measure

Numbers = See table in *M3_P5_DOCUMENTATION_OF_CANTAB_20260206*
for list of measures

For Ch4 = T (i.e., AST):

Character 5: Measure Type

T = Totals

P = Percentages

L = Latency-Related Measures

C = Cost-Related Measures

For Ch5 = T, P, or L:

Characters 6 & 7: Measure

Numbers = See table in

M3_P5_DOCUMENTATION_OF_CANTAB_20260206 for list
of measures

For Ch5 = C:

Character 6: Measure/Trial Type

C = Mean Congruency Cost

S = Mean Switch Cost

For Ch6 = C or S:

Character 7: Response Type

C = Correct

I = Incorrect

None = All Responses (Correct & Incorrect)

For Ch4 = E (i.e., ERT):

Character 5: Measure Type

P = Percentages

T = Totals

L = Latency-Related Measures

For Ch5 = P or T:

Character 6: Response Type

C = Correct

I = Incorrect

Character 7: Stimulus Type

Numbers = See table in

M3_P5_DOCUMENTATION_OF_CANTAB_20260206 for list
of measures

None = Total Correct (All Stimulus Types)

For Ch5 = L:

Characters 6 & 7: Stimulus/Response Type

Numbers = See table in

M3_P5_DOCUMENTATION_OF_CANTAB_20260206 for list
of measures

None = Mean Overall Response Latency

For Ch4 = G (i.e., CGT):

Character 5: Measure Type

A = Delay Aversion

D = Deliberation Time

P = Overall Proportion Bet

Q = Quality of Decision-Making

J = Risk Adjustment

R = Risk Taking

Character 6: Trial Type

A = Ascending Trials

D = Descending Trials

None = All Trials

For Ch3 = D (i.e., Cube & Paper Test):

C5D = Cube & Paper Total Correct

Character 4: Measure

R = Cube & Paper Total Number of Responses

C = Cube subset

P = Paper subset

For Ch4 = C or P:

Character 5: Subset - Correct vs Number of Responses

A = Number of Correct Response

B = Number of Responses

For Ch3 = F (i.e., Free Recall):

Character 4: Measure

R = Total Recalled

M = Exposed to MRI pictures in addition to psychophysiology task pictures prior to completing free recall

S = Total Recalled (Social)

X = Total Recalled (Non-Social)

P = Total Recalled (Positive)

N = Total Recalled (Negative)

O = Total Recalled (Neutral)

For Ch3 = T (i.e., Picture Ratings):

Character 4: Rating Scale

V = Valence

A = Arousal

Character 5: Picture Valence

P = Positive

N = Negative

O = Neutral

Character 6: Session

1 = Psychophysiology

For Ch3 = P (i.e., Participant Characteristic):

C5PAGE = Age at P5 visit

C5PDATE_MO = Month of P5 data collection

C5PDATE_YR = Year of P5 data collection

For Ch3 = H (i.e., Handedness):

C5HAND = Handedness

For Ch3 = O (i.e., Hearing Test):

Character 4: Side of hearing test or hearing aid use

L = Left Ear

R = Right Ear

A = Hearing aid worn in at least one ear during test

For Ch4 = L or R:

Character 5: Frequency of tone

1 = 250 Hz

2 = 500 Hz

3 = 1000 Hz

4 = 2000 Hz

5 = 4000 Hz

For Ch3 = I (i.e., General MRI Information):

Character 4:

C = Filter for participation in MRI imaging protocol (completed at least T1-weighted structural scan)
F = Radiologist flagged abnormal structural MRI
N = Self-reported neurological condition
T = Time MRI started (military time)

For Ch4 = T:

Character 5: MRI scan
S = Structural scan start time
F = Functional scan start time

For Ch3 = E (i.e., Extracted Structural Brain Measurements):

Character 4: Measurement Type
A = Cortical Area
C = Cortical Curvature
T = Cortical Thickness
V = Cortical Volume
S = Subcortical Volume
B = Brain-Predicted Age

For Ch4 = A, C, T, V, S:

Character 5: Brain Hemisphere
L = Left Hemisphere
R = Right Hemisphere
N = N/A: Measure is bilateral
Character 6: Freesurfer Brain Atlas or Module
D = Destrieux
K = Desikan-Killiany
T = Desikan-Killiany-Tourville (DKT)
A = Aseg Subcortical Atlas or Hippocampal Subfield/Amygdala Nuclei Module

Characters 7 & 8:

Numbers = See table in
M3_P5_DOCUMENTATION_OF_BRAIN_MEASURES_20260206
for list of measures

For Ch4 = B (i.e., Brain-Based Aging Algorithms):

Character 5: Algorithm
None = C5EB - Cole brainageR v1.0 - <https://github.com/james-cole/brainageR/tree/1.0>
C = Cole brainageR v2.0 - <https://github.com/james-cole/brainageR/tree/2.0>
T = TSAN brainage - PMID: 34086565 - <https://github.com/Milan-BUAA/TSAN-brain-age-estimation>
P = 3D-CNN brainage - PMID: 36595679 - https://github.com/irimia-laboratory/USC_BA_estimator
D = DunedinPACNI Dunedin Pace of Aging Calculated from NeuroImaging - PMID: 40595015 - <https://github.com/etw11/DunedinPACNI>

For Ch3 = W (i.e., Extracted Diffusion Weighted Imaging Measurements):

Character 4: Measurement Type
F = Fractional Anisotropy (FA)
M = Mean Diffusivity (MD)
R = Radial Diffusivity (RD)

A = Axial Diffusivity (AD)
N = Mean Kurtosis (MK)
S = Radial Kurtosis (RK)
B = Axial Kurtosis (AK)
X = Axonal Water Fraction (AWF)
I = Intra-axonal diffusivity (ias_Da)
P = Extra-axonal radial diffusivity (eas_de_perp)
T = Extra-axonal tortuosity (eas_tort)
D = Neurite density index (NDI)
V = Orientation dispersion index (ODI)
C = Fraction of isotropic diffusion (FISO or CSF)

Character 5: Brain Hemisphere

G = Global Measure
L = Left Hemisphere
R = Right Hemisphere
N = N/A: Measure is bilateral

For Ch5 = G:

Character 6: Tissue type

None = White Matter
A = Gray Matter
C = Cerebrospinal fluid

For Ch5 = L, R, N:

Character 6: Method Used

H = Harvard Oxford Subcortical Atlas
I = IIT Atlas v4.1 (used in MR1 only)
K = IIT Atlas v5.0
J = JHU Atlas

Characters 7 & 8:

Numbers = See table in

M3_P5_DOCUMENTATION_OF_BRAIN_MEASURES_20260206
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