Causal Claims Tables

Summary Statistics

Table 1: **Summary Statistics for NLSY Variables** Physical Health scale ranges from 10 to 70. Depression measure from CES-D, ranging from 0 to 24; Neuroticism and Conscientiousness derived from TIPI, ranging from 1 to 7; Education represents highest grade completed, ranging from 0 (none) to 20 (eight years of college or more); Income represents total net family income in 2014 dollars

Variable	Mean	Standard Deviation	Minimum	25th Percentile	50th Percentile	75th Percentile	Maximum	Number of Observations
Physical Health[i]	51.99	8.08	11.22	51.26	54.84	56.51	68.37	8,402
Physical Health[ii]	49.09	10.29	11.22	46.67	53.55	55.50	67.31	7,804
Depression[ii]	3.88	4.51	0.00	0.00	2.00	6.00	21.00	7,813
Neuroticism	2.90	1.39	1.00	2.00	3.00	4.00	7.00	6,969
Conscientiousness	5.73	1.32	1.00	5.00	6.00	7.00	7.00	6,966
Education[ii]	13.33	2.57	0.00	12.00	12.00	15.00	20.00	7,693
Income[ii]	68,487.81	85,978.38	-3.26	11,342.18	47,000.00	94,861.85	595,986.00	7,693

[i]As measured at age 40

[ii]As measured at age 50

Illustration 1: Does conscientiousness causally influence physical health?

OLS: Does Conscientiousness Causally Influence Physical Health (At Age 50)?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	-0.128	0.035	-3.72	<0.001
conscientiousness	0.057	0.019	2.93	0.003
race	0.228	0.041	5.59	<0.001

Characteristic	Beta	SE	t-statistic	p-value
sex	0.161	0.041	3.95	<0.001

Discordant: Does Conscientiousness Causally Influence Physical Health (At Age 50)?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.921	0.031	29.9	<0.001
age_50_physical_health_mean	-0.853	0.022	-39.3	<0.001
conscientiousness_diff	0.014	0.011	1.26	0.209
conscientiousness_mean	0.052	0.021	2.45	0.014
sex_1	0.016	0.031	0.504	0.615
race_1	-0.047	0.032	-1.49	0.138
sex_2	-0.065	0.031	-2.09	0.037

Standardized

```
## MODEL INFO:
## Observations: 1967
## Dependent Variable: age_50_physical_health
## Type: OLS linear regression
##
## MODEL FIT:
## F(3,1963) = 18.452, p = 0.000
## R² = 0.027
## Adj. R² = 0.026
##
## Standard errors: OLS
## ------------------------------------------------------------
##                             Est.    S.E.   t val.       p
## ----------------------- -------- ------- -------- -------
## (Intercept)               -0.204   0.038   -5.414   0.000
## conscientiousness          0.065   0.022    2.932   0.003
## race                       0.249   0.045    5.586   0.000
## sex                        0.176   0.045    3.951   0.000
## ------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 1967
## Dependent Variable: age_50_physical_health_diff
## Type: OLS linear regression
##
## MODEL FIT:
## F(6,1960) = 271.199, p = 0.000
```

```
## R² = 0.454
## Adj. R² = 0.452
##
## Standard errors: OLS
## ------------------------------------------------------------------------
##                                    Est.    S.E.    t val.       p
## ---------------------------------- -------- ------- --------- -------
## (Intercept)                         0.049   0.033     1.490   0.136
## age_50_physical_health_mean        -0.670   0.017   -39.325   0.000
## conscientiousness_diff              0.021   0.017     1.257   0.209
## conscientiousness_mean              0.041   0.017     2.448   0.014
## sex_1                               0.017   0.034     0.504   0.615
## race_1                             -0.050   0.034    -1.485   0.138
## sex_2                              -0.070   0.034    -2.087   0.037
## ------------------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

Illustration 2: Does conscientiousness causally influence mental health?

OLS: Does Conscientiousness Causally Influence Mental Health (Depression)?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.137	0.036	3.84	<0.001
conscientiousness	-0.146	0.020	-7.26	<0.001
race	-0.123	0.042	-2.93	0.003
sex	-0.251	0.042	-6.00	<0.001

OLS: Does Conscientiousness Causally Influence Mental Health (Depression) with Income and Highest Grade Level (At Age 50) as Covariates?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.411	0.162	2.53	0.011
conscientiousness	-0.128	0.027	-4.72	<0.001
race	-0.092	0.055	-1.65	0.098
highest_grade_at_age_50	-0.022	0.012	-1.79	0.073
sex	-0.173	0.053	-3.24	0.001
tnfi_at_age_50	0.000	0.000	-3.45	<0.001

Discordant: Does Conscientiousness Causally Influence Mental Health (Depression)?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.95	0.029	32.5	<0.001
depression_mean	0.833	0.021	40.1	<0.001
conscientiousness_diff	-0.024	0.011	-2.16	0.031
conscientiousness_mean	0.042	0.021	2.05	0.041
sex_1	-0.040	0.030	-1.33	0.185
race_1	-0.093	0.030	-3.12	0.002
sex_2	0.067	0.030	2.23	0.026

Discordant: Does Conscientiousness Causally Influence Mental Health (Depression) with Income and Highest Grade Level (At Age 50) as Covariates?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.922	0.170	5.43	<0.001
depression_mean	0.820	0.037	22.0	<0.001
conscientiousness_diff	-0.021	0.020	-1.06	0.289
highest_grade_at_age_50_diff	0.004	0.010	0.432	0.666
tnfi_at_age_50_diff	0.000	0.000	-0.179	0.858
conscientiousness_mean	0.002	0.036	0.055	0.956
highest_grade_at_age_50_mean	0.001	0.013	0.100	0.920
tnfi_at_age_50_mean	0.000	0.000	0.648	0.517
sex_1	-0.101	0.049	-2.06	0.040
race_1	-0.061	0.052	-1.19	0.235
sex_2	0.043	0.049	0.870	0.384

standardized

```
## MODEL INFO:
## Observations: 2050
## Dependent Variable: depression_diff
## Type: OLS linear regression
##
## MODEL FIT:
## F(6,2043) = 290.455, p = 0.000
## R² = 0.460
## Adj. R² = 0.459
##
## Standard errors: OLS
## ------------------------------------------------------------
##                                Est.    S.E.   t val.       p
## --------------------------- -------- ------- -------- -------
```

```
## (Intercept)                    0.029   0.032    0.907   0.365
## depression_mean                0.675   0.017   40.116   0.000
## conscientiousness_diff        -0.035   0.016   -2.156   0.031
## conscientiousness_mean         0.034   0.017    2.049   0.041
## sex_1                         -0.044   0.033   -1.327   0.185
## race_1                        -0.102   0.033   -3.120   0.002
## sex_2                          0.073   0.033    2.230   0.026
## ----------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 676 (1374 missing obs. deleted)
## Dependent Variable: depression_diff
## Type: OLS linear regression
##
## MODEL FIT:
## F(10,665) = 56.632, p = 0.000
## R² = 0.460
## Adj. R² = 0.452
##
## Standard errors: OLS
## ------------------------------------------------------------------------
##                                      Est.    S.E.   t val.       p
## ---------------------------------- -------- ------- -------- -------
## (Intercept)                           0.070   0.059    1.191   0.234
## depression_mean                       0.671   0.031   21.988   0.000
## conscientiousness_diff               -0.031   0.029   -1.061   0.289
## highest_grade_at_age_50_diff          0.013   0.030    0.432   0.666
## tnfi_at_age_50_diff                  -0.005   0.030   -0.179   0.858
## conscientiousness_mean                0.002   0.030    0.055   0.956
## highest_grade_at_age_50_mean          0.003   0.034    0.100   0.920
## tnfi_at_age_50_mean                   0.023   0.035    0.648   0.517
## sex_1                                -0.121   0.059   -2.062   0.040
## race_1                               -0.074   0.062   -1.189   0.235
## sex_2                                 0.051   0.059    0.870   0.384
## ------------------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 2050
## Dependent Variable: depression
## Type: OLS linear regression
##
## MODEL FIT:
## F(3,2046) = 32.193, p = 0.000
## R² = 0.045
## Adj. R² = 0.044
##
## Standard errors: OLS
## ------------------------------------------------------------
##                             Est.    S.E.   t val.       p
## ---------------------- -------- ------- -------- -------
## (Intercept)               0.188   0.037    5.120   0.000
```

```
## conscientiousness         -0.157   0.022   -7.259   0.000
## race                      -0.127   0.043   -2.928   0.003
## sex                       -0.259   0.043   -5.996   0.000
## ------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 1123 (927 missing obs. deleted)
## Dependent Variable: depression
## Type: OLS linear regression
##
## MODEL FIT:
## F(5,1117) = 16.364, p = 0.000
## R² = 0.068
## Adj. R² = 0.064
##
## Standard errors: OLS
## ------------------------------------------------------------------
##                                  Est.    S.E.   t val.       p
## ------------------------------ -------- ------- -------- -------
## (Intercept)                     0.149   0.051    2.942   0.003
## conscientiousness              -0.138   0.029   -4.723   0.000
## race                           -0.101   0.061   -1.655   0.098
## highest_grade_at_age_50        -0.059   0.033   -1.793   0.073
## sex                            -0.191   0.059   -3.238   0.001
## tnfi_at_age_50                 -0.116   0.034   -3.453   0.001
## ------------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

Illustration 3 Does neuroticism causally influence mental health?

OLS: Does Neuroticism Causally Influence Mental Health (Depression)?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.137	0.036	3.86	<0.001
neuroticism	0.185	0.021	8.86	<0.001
race	-0.136	0.042	-3.24	0.001
sex	-0.226	0.042	-5.41	<0.001

OLS: Does Neuroticism Causally Influence Mental Health (Depression) with Income and Highest Grade Level (At Age 50) as Covariates?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.398	0.163	2.43	0.015
neuroticism	0.154	0.027	5.63	<0.001

Characteristic	Beta	SE	t-statistic	p-value
race	-0.114	0.055	-2.05	0.041
highest_grade_at_age_50	-0.019	0.012	-1.57	0.116
sex	-0.151	0.053	-2.83	0.005
tnfi_at_age_50	0.000	0.000	-3.88	<0.001

Discordant: Does Neuroticism Causally Influence Mental Health (Depression)?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.942	0.030	31.9	<0.001
depression_mean	0.827	0.021	39.1	<0.001
neuroticism_diff	0.050	0.011	4.45	<0.001
neuroticism_mean	-0.029	0.021	-1.41	0.160
sex_1	-0.028	0.030	-0.941	0.347
race_1	-0.092	0.030	-3.08	0.002
sex_2	0.056	0.030	1.88	0.060

Discordant: Does Neuroticism Causally Influence Mental Health (Depression) with Income and Highest Grade Level (At Age 50) as Covariates?

Characteristic	Beta	SE	t-statistic	p-value
(Intercept)	0.880	0.170	5.18	<0.001
depression_mean	0.809	0.037	21.9	<0.001
neuroticism_diff	0.065	0.019	3.40	<0.001
highest_grade_at_age_50_diff	-0.004	0.010	-0.361	0.718
tnfi_at_age_50_diff	0.000	0.000	-0.698	0.485
neuroticism_mean	-0.008	0.035	-0.230	0.818
highest_grade_at_age_50_mean	0.003	0.013	0.265	0.791
tnfi_at_age_50_mean	0.000	0.000	0.706	0.481
sex_1	-0.122	0.048	-2.53	0.012
race_1	-0.064	0.051	-1.25	0.212
sex_2	0.065	0.049	1.35	0.178

Standardized

```
## MODEL INFO:
## Observations: 2046
```

```
## Dependent Variable: depression
## Type: OLS linear regression
##
## MODEL FIT:
## F(3,2042) = 40.690, p = 0.000
## R² = 0.056
## Adj. R² = 0.055
##
## Standard errors: OLS
## ------------------------------------------------
##                       Est.    S.E.   t val.       p
## ----------------- -------- ------- -------- -------
## (Intercept)          0.181   0.037    4.955   0.000
## neuroticism          0.191   0.022    8.860   0.000
## race                -0.140   0.043   -3.243   0.001
## sex                 -0.233   0.043   -5.405   0.000
## ------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 1125 (921 missing obs. deleted)
## Dependent Variable: depression
## Type: OLS linear regression
##
## MODEL FIT:
## F(5,1119) = 18.832, p = 0.000
## R² = 0.078
## Adj. R² = 0.073
##
## Standard errors: OLS
## ------------------------------------------------------------------
##                                  Est.    S.E.   t val.       p
## ------------------------------ -------- ------- -------- -------
## (Intercept)                       0.149   0.050    2.945   0.003
## neuroticism                       0.163   0.029    5.632   0.000
## race                             -0.125   0.061   -2.050   0.041
## highest_grade_at_age_50          -0.052   0.033   -1.575   0.116
## sex                              -0.166   0.059   -2.832   0.005
## tnfi_at_age_50                   -0.129   0.033   -3.876   0.000
## ------------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 2046
## Dependent Variable: depression_diff
## Type: OLS linear regression
##
## MODEL FIT:
## F(6,2039) = 293.182, p = 0.000
## R² = 0.463
## Adj. R² = 0.462
##
## Standard errors: OLS
```

```
## ------------------------------------------------------
##                            Est.    S.E.   t val.       p
## ---------------------- -------- ------- -------- -------
## (Intercept)                0.029   0.032    0.889   0.374
## depression_mean            0.670   0.017   39.056   0.000
## neuroticism_diff           0.073   0.016    4.450   0.000
## neuroticism_mean          -0.024   0.017   -1.406   0.160
## sex_1                     -0.031   0.033   -0.941   0.347
## race_1                    -0.100   0.033   -3.075   0.002
## sex_2                      0.061   0.033    1.878   0.060
## ------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```

```
## MODEL INFO:
## Observations: 677 (1369 missing obs. deleted)
## Dependent Variable: depression_diff
## Type: OLS linear regression
##
## MODEL FIT:
## F(10,666) = 59.542, p = 0.000
## R² = 0.472
## Adj. R² = 0.464
##
## Standard errors: OLS
## ------------------------------------------------------------------------
##                                      Est.    S.E.   t val.       p
## ---------------------------------- -------- ------- -------- -------
## (Intercept)                           0.073   0.058    1.252   0.211
## depression_mean                       0.663   0.030   21.900   0.000
## neuroticism_diff                      0.096   0.028    3.400   0.001
## highest_grade_at_age_50_diff         -0.011   0.029   -0.361   0.718
## tnfi_at_age_50_diff                  -0.020   0.029   -0.698   0.485
## neuroticism_mean                     -0.007   0.029   -0.230   0.818
## highest_grade_at_age_50_mean          0.009   0.033    0.265   0.791
## tnfi_at_age_50_mean                   0.025   0.035    0.706   0.481
## sex_1                                -0.147   0.058   -2.534   0.012
## race_1                               -0.076   0.061   -1.249   0.212
## sex_2                                 0.078   0.058    1.347   0.178
## ------------------------------------------------------------------------
##
## Continuous variables are mean-centered and scaled by 1 s.d.
```