Supplemental Online Material

Annotated SAS Code

This supplemental material provides SAS code for estimating the models for the Body Project Data (see Table 3). The relevant data for the analysis are:

- `tii2`: posttest thin-ideal internalization
- `tii1`: baseline thin-ideal internalization
- `dis`: dummy coded indicator variable for the dissonance intervention condition
- `hw`: dummy coded indicator variable for the healthy-weight intervention condition
- `txcond`: a categorical variable for intervention condition

Homoscedastic Residuals. The SAS code for estimating the "Homoscedastic Residuals" model in Table 3:

```
proc mixed covtest;
      class groupid txcond;
      model tii2 = txcond tii1 / solution ddfm=satterth;
      random dis hw / subject = groupid;
      estimate "DIS + HW vs EW + AO" txcond .5 .5 -.5 -.5;
      estimate "DIS vs HW" txcond 1 -1 0 0;
      estimate "HW vs EW + AO" txcond 0 1 -.5 -.5;
run;
```

The first line calls the SAS mixed procedure and asks for significance tests for the covariance parameters (`covtest`). The `class` statement identifies `groupid` and `txcond` as categorical variables. The `model` statement identifies `tii2` as the outcome variable and predicts `tii2` from `txcond` and `tii1`. SAS will automatically create the dummy variables for `txcond` since it was previously declared in the `class` statement. The `/solution ddfm=satterth` options for the model statement request that SAS print the fixed effects coefficients and to use the Satterthwaite degrees of freedom for the fixed effects. The `random` statement is used

to introduce random intercepts for the clustered conditions: `dis` and `hw`. The `/subject = groupid` command on the random line specifies that the effects of the clustered conditions are allowed to vary over groups. The three `estimate` commands use contrasts to test the three hypotheses about the pattern of treatment effects.

Homoscedastic Residuals Output. The following is the SAS output for the fixed and random effects for the Homoscedastic Residuals model in Table 3.

Covariance Parameter Estimates

Cov Parm	Subject	Estimate	Standard Error	Z Value	Pr > Z
DIS	GROUPID	0.03948	0.03086	1.28	0.1004
HW	GROUPID	0.05942	0.03349	1.77	0.0380
Residual		0.2742	0.01843	14.88	<.0001

Solution for Fixed Effects

Effect	Treatment Condition	Estimate	Standard Error	DF	t Value	Pr > |t|
Intercept		3.5480	0.04667	443	76.02	<.0001
TXCOND	0	-0.4411	0.08395	28.6	-5.25	<.0001
TXCOND	1	-0.2359	0.08911	35.1	-2.65	0.0121
TXCOND	2	-0.06741	0.06639	443	-1.02	0.3106
TXCOND	3	0	.	.	.	.
TII1C		0.8276	0.04793	474	17.27	<.0001

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	F Value	Pr > F
TXCOND	3	71.7	10.44	<.0001
TII1C	1	474	298.16	<.0001

Estimates

Label	Estimate	Standard Error	DF	t Value	Pr > |t|

```
DIS + HW vs EQ + AO     -0.3048     0.06131      64      -4.97      <.0001
DIS vs HW               -0.2052      0.1031    32.4      -1.99      0.0550
HW vs EQ + AO           -0.2022     0.08286    26.4      -2.44      0.0217
```

Heteroscedastic Residuals. The SAS code for estimating the "Heteroscedastic Residuals" model in Table 3 is:

```
proc mixed covtest;
      class groupid txcond;
      model tii2 = txcond tii1 / solution ddfm=satterth;
      random dis hw / subject = groupid;
      repeated / group = txcond;
      estimate "DIS + HW vs EW + AO" txcond .5 .5 -.5 -.5;
      estimate "DIS vs HW" txcond 1 -1 0 0;
      estimate "HW vs EW + AO" txcond 0 1 -.5 -.5;
run;
```

The code is identical to the previous code with the exception of the boldface material. The repeated `/group = txcond` statement requests that SAS estimate residuals separately for each intervention condition. Note that the data must be pre-sorted on `txcond` prior to fitting the model.

Heteroscedastic Residuals Output. The following is the SAS output for the fixed and random effects for the Heteroscedastic Residuals model in Table 3.

```
                        Covariance Parameter Estimates

                                                 Standard         Z
 Cov Parm     Subject    Group       Estimate       Error     Value      Pr > Z

 DIS          GROUPID                 0.02952     0.03165      0.93      0.1755
 HW           GROUPID                 0.05238     0.03356      1.56      0.0593
 Residual                TXCOND 0      0.3357     0.04911      6.84      <.0001
 Residual                TXCOND 1      0.3255     0.04571      7.12      <.0001
 Residual                TXCOND 2      0.2564     0.03294      7.78      <.0001
 Residual                TXCOND 3      0.2032     0.02583      7.87      <.0001

                          Solution for Fixed Effects

              Treatment                Standard
 Effect       Condition    Estimate       Error      DF    t Value    Pr > |t|
```

Intercept		3.5487	0.04018	124	88.32	<.0001
TXCOND	0	-0.4419	0.08017	23.2	-5.51	<.0001
TXCOND	1	-0.2365	0.08619	30.7	-2.74	0.0100
TXCOND	2	-0.06834	0.06083	239	-1.12	0.2623
TXCOND	3	0	.	.	.	.
TII1C		0.8521	0.04679	445	18.21	<.0001

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	F Value	Pr > F
TXCOND	3	62.3	11.32	<.0001
TII1C	1	445	331.58	<.0001

Estimates

Label	Estimate	Standard Error	DF	t Value	Pr > |t|
DIS + HW vs EQ + AO	-0.3050	0.05984	57.3	-5.10	<.0001
DIS vs HW	-0.2053	0.1031	32.1	-1.99	0.0550
HW vs EQ + AO	-0.2024	0.08209	25.5	-2.47	0.0208