Hypothesis 6
Findings regarding the relationship between Chornobyl related health threats summary score and PTSD.

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26 July 2012

Contents

1 Acknowledgements

This project has been funded by National Science Foundation HSD grant 08262983, and to them we remain deeply grateful. We are also grateful to the developers of Stata in College Station, Texas, Salford Systems, Inc. in San Diego, California, and AutoMetrics in Oxford, London for the software they have developed and which we are using. We are also grateful to Ben Jann of ETH in Switzerland for his development of the estout.ado program which allows us to format our output so neatly. We are grateful for invaluable data management

2 Introduction

Hypothesis 6 postulates that the summary score of Chornobyl related health threats explains and/or predicts post-traumatic stress disorder (PTSD). We measure with a Mississippi instrument in wave three and we ask for a self-report at each wave. These tests are done separately for males and females.

2.1 Key organizing variables

We find that regression analysis of the relationship between our summary score, consisting of factors scores of three variables— the percent belief that your own health has been affected by Chornobyl, that your family's health has been affected by Chornobyl, and most of the cancer cases in Zhitomyr and Kiev Oblast are due to Chornobyl, we obtain factor scores with respectable alpha reliability coefficients. All of these coefficients, regardless of the wave in which they were computed, exceed 0.70.

For these analyses, we have no measures but self-reports for PTSD for waves one and two. Only for the third wave is the Mississippi a valid instrument and only in a wave three analysis do we use that score.

3 Zero-order main effects tests

If we examine self-reports of PTSD over three waves, with the summary Chornobyl related health score as a predictor, we find that all of the male models have positive statistically significant parameters, but the explanatory and predictive power appears to decline with time. The R^2 of each model goes from .17 in wave 1 to .13 in wave 2 to .14 in wave 3. But the female model parameter estimate is not significant at wave one. It becomes significant with wave 2 and wave 3. However, the explanatory power is piffling. THe R^2 for wave 2 or 3 does not exceed 0.02. Without controlling for competing or conflicting covariates, we cannot say that these models explain or predict very much self-reported PTSD. But self-reported PTSD measures are not as generally reliable as a standardized scale.

The MiPTSD scale is designed only for current usage and is only appropriate for use during wave three. If we do not control for other variables, we find that all of the regression parameters are statistically significant and positive. This means that the optimal explanatory variable in a zero-order model is the summary score for the third wave. The male model has an R^2 of 0.28 and the females exhibit an R^2 of 0.10 in the zero order model. The male parameter estimate is 6.87 (t=11.53, p=0.000) and the female parameter estimates is 4.210 (t=6.22 p=0.000). However, the proportion of variance explained is not so large that we can say with any amount of confidence that this is explained by the summary score for Chornobyl related health threat.

But we tested these models for fractional polynomial or high order polynomial enhancement, we found that transformations would not significantly increase the proportion of variance explained. In terms of variance encompassing and residual normality, as well as for tests of specification error, such as the Ramsey Reset test, these results are not fully consistent with the hypothesis.

4 Tests amidst likely covariates

Therefore, male and female models for PTSD in wave three were supplied with potential covariates found in reality. We at first include such demographics as martial status, occupational status, number of children and income sufficiency. The covariates also included belief in other hazards of air and water the extent to which pollution is due to Chornobyl, whether they they people who were injured as a result of Chornobyl in a full model.

Before proceeding we test our model for panel unit roots in Table 1 with a Hadri test and find that for both males and female models, we cannot reject the null hypothesis of stationarity in all panels.

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Table 1 upper panel: HADRI panel unit root test for male MiPTSD
Hadri LM test for MiPTSD
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Ho: All panels are stationary              Number of panels  =    339
Ha: Some panels contain unit roots         Number of periods =      3

Time trend:         Not included           Asymptotics: T, N -> Infinity
Heteroskedasticity: Robust                                  sequentially
LR variance:        (not used)
------------------------------------------------------------------------------
                    Statistic      p-value
------------------------------------------------------------------------------
 z                  -20.5852        1.0000
------------------------------------------------------------------------------
```

```
Table 1 lower panel: HADRI panel unit root test for female MiPTSD
Hadri LM test for MiPTSD
---------------------------
Ho: All panels are stationary              Number of panels  =    363
Ha: Some panels contain unit roots         Number of periods =      3

Time trend:         Not included           Asymptotics: T, N -> Infinity
Heteroskedasticity: Robust                                  sequentially
LR variance:        (not used)
------------------------------------------------------------------------------
                    Statistic      p-value
------------------------------------------------------------------------------
 z                  -21.3014        1.0000
------------------------------------------------------------------------------
```

We proceed to analyze male Civilian PTSD in Table 2 with significant covariates in a panel analysis performed with panel corrected standard errors, controlling for common autocorrelation. We also control for sector in this model, as we find that there are statistically significant differences in PTSD between sector one (the northern part of Zhitomyr where the plume has been thought to be blown by the wind, and sector 3, the middle part of Kiev Oblast, as well as sector 4, the Southern part of Kiev Oblast. In both of these areas PTSD was significant less than in either the Northern part of Zhitomyr or the Northern part of Kiev Oblast (sector 2).

The model is a trimmed model with controls for age, depression (depagw) and anxiety (anxagw) in each wave. It also control for the proportion of pollution due to Chornobyl (radchw), fear of going outdoors (goferw), fear of eating contaminated food (fdferw) and fear of nutritonal deficiencies (defnw). We also control for current residential geodesic distance from Chornobyl.

We also observe that there is a statistically significant direct main effect of Chornobyl related health threat to the males (b=3.05, t=7.11, p=0.000) and PTSD measured by the revised Mississippi Civilian instrument, when all of the other significant covariates are controlled for in Table 2. With an autocorrelation estimate ($\rho = .673$) we had to correct for this if our standard errors were going to be correct.

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Table 2 Male Panel analysis of MiPTSD with covariates

(note: estimates of rho outside [-1,1] bounded to be in the range [-1,1])

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable: id		Number of obs	= 1016
Time variable: wave		Number of groups	= 339
Panels: correlated (unbalanced)		Obs per group: min	= 2
Autocorrelation: common AR(1)		avg	= 2.99705
Sigma computed by casewise selection		max	= 3
Estimated covariances	= 57630	R-squared	= 0.8207
Estimated autocorrelations	= 1	Wald chi2(6)	= 14958.63
Estimated coefficients	= 17	Prob > chi2	= 0.0000

MiPTSD	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	.1841524	.0220133	8.37	0.000	.1410071	.2272978
wave						
2	1.360397	.7073208	1.92	0.054	-.0259267	2.74672
3	1.307702	.7035981	1.86	0.063	-.0713251	2.686729
sector						
2	-2.477725	1.952003	-1.27	0.204	-6.303581	1.34813
3	-4.393618	1.584571	-2.77	0.006	-7.49932	-1.287916
4	-8.498551	1.712869	-4.96	0.000	-11.85571	-5.141391
5	1.689382	1.147732	1.47	0.141	-.5601311	3.938895
6	1.843679	1.432593	1.29	0.198	-.9641521	4.65151
depagw	.0082633	.0163387	0.51	0.613	-.02376	.0402866
anxagw	.0260036	.0229888	1.13	0.258	-.0190537	.0710608
crhtw	3.05	.4287144	7.11	0.000	2.209736	3.890265
radchw	-.0486013	.0076848	-6.32	0.000	-.0636631	-.0335394
fdferw	.0814488	.0285908	2.85	0.004	.0254117	.1374858
goferw	-.0240654	.0125697	-1.91	0.056	-.0487015	.0005706
defnw	.0096555	.0053221	1.81	0.070	-.0007755	.0200866
havmil	.007874	.001703	4.62	0.000	.0045362	.0112117
_cons	40.92072	1.785438	22.92	0.000	37.42133	44.42011
rho	.67302					

When we examine the same sort of analysis for women in Table 2 we note a similar result. After controlling for age, wave, sector, and geodesic distance from Chornobyl along with depression, anxiety, belief in expoure to radiation can compromise one's health, we note a statistically significant direct main effect for Chornobyl related health threat and PTSD as measured by the Mississippi Civilian instrument for women (b = 0.175 t= 3.74, p = 0.006). Because the autocorrelation coefficient is even higher in this case ($\rho = .907$), it is even more important that we control for this to avoid biased standard errors.

Table 3 Female Panel analysis of PTSD measured by Mississippi scale

(note: estimates of rho outside [-1,1] bounded to be in the range [-1,1])

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable:	id	Number of obs =	1088
Time variable:	wave	Number of groups =	363
Panels:	correlated (unbalanced)	Obs per group: min =	2
Autocorrelation:	common AR(1)	avg =	2.997245
Sigma computed by casewise selection		max =	3
Estimated covariances =	66066	R-squared =	0.8999
Estimated autocorrelations =	1	Wald chi2(6) =	935106.56
Estimated coefficients =	16	Prob > chi2 =	0.0000

MiPTSD	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	.1705958	.0049403	34.53	0.000	.1609129	.1802787
wave						
2	.0397888	.0800855	0.50	0.619	-.117176	.1967535
3	.023376	.0649042	0.36	0.719	-.1038339	.1505859
depagw	.0015144	.0031282	0.48	0.628	-.0046167	.0076455
anxagw	.0041305	.0082111	0.50	0.615	-.011963	.0202241
injothr	3.66746	.0653461	56.12	0.000	3.539384	3.795536
healthef	.0563004	.0012444	45.24	0.000	.0538614	.0587394
relselfr	7.773434	.3039147	25.58	0.000	7.177772	8.369095
havmil	.0016423	.00006	27.36	0.000	.0015246	.0017599
sector						
2	-14.31939	.2618974	-54.68	0.000	-14.8327	-13.80608
3	-13.03522	.2846055	-45.80	0.000	-13.59303	-12.4774
4	-12.57566	.2295805	-54.78	0.000	-13.02563	-12.1257
5	-6.162433	.1453951	-42.38	0.000	-6.447402	-5.877464
6	.4020515	.2303715	1.75	0.081	-.0494685	.8535714
crhtw	.1757305	.0641319	2.74	0.006	.0500343	.3014267
_cons	44.73056	.2971372	150.54	0.000	44.14818	45.31294
rho	.9072909					

5 Potential moderating effects

However, when moderators were tested, the interaction between sector and Chornobyl related health threat was found to be statistically significant for women as displayed in Table 4.

Table 4 Female Moderating effects for PTSD
note: crhtw omitted because of collinearity
(note: estimates of rho outside [-1,1] bounded to be in the range [-1,1])

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable:	id		Number of obs	=	1088
Time variable:	wave		Number of groups	=	363
Panels:	correlated (unbalanced)		Obs per group: min	=	2
Autocorrelation:	common AR(1)		avg	=	2.997245
Sigma computed by casewise selection			max	=	3
Estimated covariances	=	66066	R-squared	=	0.8966
Estimated autocorrelations	=	1	Wald chi2(6)	=	94684.84
Estimated coefficients	=	21	Prob > chi2	=	0.0000

MiPTSD	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	.1618348	.0076543	21.14	0.000	.1468327	.1768369
wave						
2	.0454815	.081142	0.56	0.575	-.113554	.204517
3	.0252538	.0648065	0.39	0.697	-.1017646	.1522721
depagw	.0022971	.0032956	0.70	0.486	-.0041622	.0087563
anxagw	.0046289	.008977	0.52	0.606	-.0129658	.0222235
injothr	3.390211	.1440193	23.54	0.000	3.107938	3.672484
healthef	.0532855	.0022046	24.17	0.000	.0489645	.0576065
relselfr	7.302397	.410552	17.79	0.000	6.49773	8.107064
havmil	.0016218	.0000365	44.47	0.000	.0015504	.0016933
sector						
2	-15.11106	.3233907	-46.73	0.000	-15.74489	-14.47722
3	-13.15073	.588634	-22.34	0.000	-14.30443	-11.99703
4	-13.36813	.940536	-14.21	0.000	-15.21155	-11.52471
5	-6.094351	.7739216	-7.87	0.000	-7.61121	-4.577493
6	.3973489	.6735384	0.59	0.555	-.922762	1.71746
crhtw	-.1449018	.0446227	-3.25	0.001	-.2323607	-.057443
crhtw	0	(omitted)				
sector#c.crhtw						
2	2.951337	.9102536	3.24	0.001	1.167272	4.735401
3	.1654602	.0746156	2.22	0.027	.0192163	.311704
4	1.783737	.7275443	2.45	0.014	.3577767	3.209698
5	.3210172	.1235651	2.60	0.009	.078834	.5632004
6	.2058365	.0747857	2.75	0.006	.0592593	.3524137
_cons	45.69965	.7099985	64.37	0.000	44.30808	47.09122
rho	.8949918					

Autocorrelation renders the waves not significantly different from one another with respect to PTSD, but there are significant differences between sectors for PTSD as can be seen in Table 6.

Table 5 Contrasts of predictive margins
Model VCE : Panel-corrected

Expression : Fitted values, predict()

	df	chi2	P>chi2
wave			
(2 vs 1)	1	0.31	0.5751
(3 vs 1)	1	0.15	0.6968
Joint	2	1.69	0.4286

	Contrast	Delta-method Std. Err.	[95% Conf.	Interval]
wave				
(2 vs 1)	.0454815	.081142	-.113554	.204517
(3 vs 1)	.0252538	.0648065	-.1017646	.1522721

Table 6 Contrasts of predictive margins
Model VCE : Panel-corrected

Expression : Fitted values, predict()

	df	chi2	P>chi2
sector			
(2 vs 1)	1	1782.54	0.0000
(3 vs 1)	1	494.01	0.0000
(4 vs 1)	1	207.61	0.0000
(5 vs 1)	1	61.77	0.0000
(6 vs 1)	1	0.41	0.5213
Joint	5	14734.84	0.0000

	Contrast	Delta-method Std. Err.	[95% Conf.	Interval]
sector				
(2 vs 1)	-14.64171	.3467943	-15.32142	-13.96201
(3 vs 1)	-13.12442	.5904898	-14.28176	-11.96708
(4 vs 1)	-13.08447	.9081069	-14.86432	-11.30461
(5 vs 1)	-6.043301	.7689542	-7.550423	-4.536178
(6 vs 1)	.4300826	.6705514	-.8841741	1.744339

6 Mediating effects as observed in Structural equations of PTSD

6.1 Male PTSD model

When we construct a path analytic model testing whether there is a direct as well as an indirect path from Chornobyl related health effects, we obtain very interesting results for males and females, as shown in Table 7 for males.

There are direct paths proceeding from Chornobyl related health threat to PTSD in wave one, according to the self-reported PTSD, which is the only measure that we have of PTSD for the first wave (b = 88.534 z=2.67, p = 0.008). In the next wave (wave two) we observe a direct path from Chornobyl related health threats in wave 2 (crhtw2) to self-reported PTSD in wave two (b = 2.835 z=3.80, p=0.000). But there is no direct path from the health threat in the previous wave to PTSD in wave 2. However, in wave three, there is a direct path from the previous wave (crhtw2 b=3.016 z=5.50, p=0.000). This suggests that PTSD in wave three can be predicted, given the proper instruments, from those Chornobyl related health threats in wave two. The same cannot be said of PTSD in wave one predicting PTSD in wave two. We note partial predictability for PTSD among males in this situation.

This model fits the data as can be observed from the Likelihood ration χ^2 =0.1010 and because the moduli are all within the unit circle, the model fulfills the stability conditions.

We decompose the model for the males into direct, indirect, and total effects in Tables 9, 10, and 11, from which we can observe these reported direct effects. In sum, the males exhibit a direct effect from the summary score of Chornobyl related health effects to PTSD in waves one and two, but not in wave three, as measured by the Mississippi civilian PTSD scale score.

Table 7 Structural equation path model for males and PTSD

Structural equation model Number of obs = 331
Estimation method = ml
Log likelihood = -17732.343

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
avgcum~2 <-						
age	.0042741	.0030971	1.38	0.168	-.0017961	.0103442
avgcumdos~1	1.150662	.0219955	52.31	0.000	1.107552	1.193772
illw1	.1267012	.0977114	1.30	0.195	-.0648096	.3182121
havmil	-.0004914	.0003429	-1.43	0.152	-.0011634	.0001806
icdxcnt	.0337108	.0229542	1.47	0.142	-.0112785	.0787002
radchw1	.0022718	.0009887	2.30	0.022	.000334	.0042097
_cons	.0410652	.1602539	0.26	0.798	-.2730267	.355157
crhtw1 <-						
age	.0162549	.0037448	4.34	0.000	.0089152	.0235945
avgcumdos~1	.0264232	.0166899	1.58	0.113	-.0062883	.0591348
illw1	.0471139	.0587031	0.80	0.422	-.0679421	.1621699
havmil	-.0009598	.00042	-2.29	0.022	-.0017831	-.0001365
radchw1	-.0007053	.0012619	-0.56	0.576	-.0031786	.001768
airw1	.0098957	.0012683	7.80	0.000	.00741	.0123815
radw1	.0030811	.0011504	2.68	0.007	.0008263	.0053359
_cons	-1.608145	.2009874	-8.00	0.000	-2.002073	-1.214217
crhtw2 <-						
avgcumdos~2	.065308	.0352059	1.86	0.064	-.0036943	.1343104
crhtw1	.7972845	.0253508	31.45	0.000	.7475978	.8469712
avgcumdos~1	-.1103735	.0431472	-2.56	0.011	-.1949404	-.0258065
icdxcnt	.0598666	.0150157	3.99	0.000	.0304364	.0892969
radchw1	-.0077508	.0008868	-8.74	0.000	-.009489	-.0060127
radchw2	.0088279	.0009278	9.51	0.000	.0070094	.0106463
illw2	.1897646	.0424434	4.47	0.000	.1065771	.2729521
radw2	.002624	.0007346	3.57	0.000	.0011842	.0040638
_cons	-.3867569	.0597536	-6.47	0.000	-.5038717	-.269642
PTSDw1 <-						
crhtw1	88.53432	33.19479	2.67	0.008	23.47373	153.5949
age	-1.366398	.635724	-2.15	0.032	-2.612394	-.1204018
havmil	.0318959	.0514347	0.62	0.535	-.0689143	.132706
icdxcnt	2.894117	1.166754	2.48	0.013	.6073206	5.180914
radchw1	-.2361654	.1068714	-2.21	0.027	-.4456294	-.0267013
airw1	-.5533222	.3594229	-1.54	0.124	-1.257778	.1511338
_cons	142.6942	53.01585	2.69	0.007	38.78504	246.6034

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	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
PTSDw2 <-						
crhtw2	2.834522	.7464686	3.80	0.000	1.371471	4.297574
PTSDw1	.0921938	.0167231	5.51	0.000	.059417	.1249706
age	.1234019	.0523709	2.36	0.018	.0207569	.2260469
avgcumdos~1	-.6086565	.3591329	-1.69	0.090	-1.312544	.0952311
icdxcnt	-1.037163	.393548	-2.64	0.008	-1.808503	-.2658233
radchw2	-.0685893	.0177563	-3.86	0.000	-.1033911	-.0337875
illw2	3.023728	1.059671	2.85	0.004	.9468102	5.100645
radw2	.0909383	.0189519	4.80	0.000	.0537933	.1280832
_cons	-1.499636	2.928032	-0.51	0.609	-7.238475	4.239202
MiPTSD <-						
avgcumdos~2	-.5350549	.2171563	-2.46	0.014	-.9606735	-.1094364
crhtw2	3.015964	.5486406	5.50	0.000	1.940648	4.09128
PTSDw1	.0847532	.0127838	6.63	0.000	.0596974	.1098089
PTSDw2	.1565365	.0398818	3.93	0.000	.0783697	.2347033
age	.0880756	.0378223	2.33	0.020	.0139451	.162206
illw1	3.325304	1.15483	2.88	0.004	1.061879	5.588729
havmil	.0089795	.0040689	2.21	0.027	.0010047	.0169544
radchw2	-.0418445	.0133722	-3.13	0.002	-.0680534	-.0156355
illw2	3.172976	.7514112	4.22	0.000	1.700237	4.645715
radw2	.0835874	.0143676	5.82	0.000	.0554274	.1117475
_cons	37.53437	2.178869	17.23	0.000	33.26387	41.80488
Variance						
e.avgcumd~2	.4060684	.0315646			.3486851	.4728953
e.crhtw1	.6150598	.0478353			.5281004	.7163385
e.crhtw2	.1677849	.0130423			.1440745	.1953973
e.PTSDw1	4735.537	3191.375			1263.942	17742.36
e.PTSDw2	105.3381	8.188165			90.45234	122.6737
e.MiPTSD	56.61918	4.401134			48.61808	65.93703
Covariance						
e.crhtw1						
e.PTSDw1	-47.75493	20.80817	-2.30	0.022	-88.5382	-6.971659

LR test of model vs. saturated: chi2(39) = 50.60, Prob > chi2 = 0.1010

Table 8 Stability analysis of simultaneous equation systems

Eigenvalue stability condition

Eigenvalue	Modulus
.00002939 + .00002941*i*	.000042
.00002939 - .00002941*i*	.000042
-.00002939 + .00002937*i*	.000042
-.00002939 - .00002937*i*	.000042
-1.374e-08	1.4e-08
1.374e-08	1.4e-08

stability index = .0000416
All the eigenvalues lie inside the unit circle.
SEM satisfies stability condition.

Table 9 Direct effects

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
avgcum~2 <-						
age	.0042741	.0030971	1.38	0.168	-.0017961	.0103442
avgcumdos~1	1.150662	.0219955	52.31	0.000	1.107552	1.193772
illw1	.1267012	.0977114	1.30	0.195	-.0648096	.3182121
havmil	-.0004914	.0003429	-1.43	0.152	-.0011634	.0001806
icdxcnt	.0337108	.0229542	1.47	0.142	-.0112785	.0787002
radchw1	.0022718	.0009887	2.30	0.022	.000334	.0042097
crhtw1 <-						
age	.0162549	.0037448	4.34	0.000	.0089152	.0235945
avgcumdos~1	.0264232	.0166899	1.58	0.113	-.0062883	.0591348
illw1	.0471139	.0587031	0.80	0.422	-.0679421	.1621699
havmil	-.0009598	.00042	-2.29	0.022	-.0017831	-.0001365
radchw1	-.0007053	.0012619	-0.56	0.576	-.0031786	.001768
airw1	.0098957	.0012683	7.80	0.000	.00741	.0123815
radw1	.0030811	.0011504	2.68	0.007	.0008263	.0053359
crhtw2 <-						
avgcumdos~2	.065308	.0352059	1.86	0.064	-.0036943	.1343104
crhtw1	.7972845	.0253508	31.45	0.000	.7475978	.8469712
age	0	(no path)				
avgcumdos~1	-.1103735	.0431472	-2.56	0.011	-.1949404	-.0258065
illw1	0	(no path)				
havmil	0	(no path)				
icdxcnt	.0598666	.0150157	3.99	0.000	.0304364	.0892969
radchw1	-.0077508	.0008868	-8.74	0.000	-.009489	-.0060127
airw1	0	(no path)				
radw1	0	(no path)				
radchw2	.0088279	.0009278	9.51	0.000	.0070094	.0106463
illw2	.1897646	.0424434	4.47	0.000	.1065771	.2729521
radw2	.002624	.0007346	3.57	0.000	.0011842	.0040638
PTSDw1 <-						
crhtw1	88.53432	33.19479	2.67	0.008	23.47373	153.5949
age	-1.366398	.635724	-2.15	0.032	-2.612394	-.1204018
avgcumdos~1	0	(no path)				
illw1	0	(no path)				
havmil	.0318959	.0514347	0.62	0.535	-.0689143	.132706
icdxcnt	2.894117	1.166754	2.48	0.013	.6073206	5.180914
radchw1	-.2361654	.1068714	-2.21	0.027	-.4456294	-.0267013
airw1	-.5533222	.3594229	-1.54	0.124	-1.257778	.1511338
radw1	0	(no path)				

Continued on the next page ...

Table 9 - continued...

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
PTSDw2 <-						
avgcumdos~2	0	(no path)				
crhtw1	0	(no path)				
crhtw2	2.834522	.7464686	3.80	0.000	1.371471	4.297574
PTSDw1	.0921938	.0167231	5.51	0.000	.059417	.1249706
age	.1234019	.0523709	2.36	0.018	.0207569	.2260469
avgcumdos~1	-.6086565	.3591329	-1.69	0.090	-1.312544	.0952311
illw1	0	(no path)				
havmil	0	(no path)				
icdxcnt	-1.037163	.393548	-2.64	0.008	-1.808503	-.2658233
radchw1	0	(no path)				
airw1	0	(no path)				
radw1	0	(no path)				
radchw2	-.0685893	.0177563	-3.86	0.000	-.1033911	-.0337875
illw2	3.023728	1.059671	2.85	0.004	.9468102	5.100645
radw2	.0909383	.0189519	4.80	0.000	.0537933	.1280832
MiPTSD <-						
avgcumdos~2	-.5350549	.2171563	-2.46	0.014	-.9606735	-.1094364
crhtw1	0	(no path)				
crhtw2	3.015964	.5486406	5.50	0.000	1.940648	4.09128
PTSDw1	.0847532	.0127838	6.63	0.000	.0596974	.1098089
PTSDw2	.1565365	.0398818	3.93	0.000	.0783697	.2347033
age	.0880756	.0378223	2.33	0.020	.0139451	.162206
avgcumdos~1	0	(no path)				
illw1	3.325304	1.15483	2.88	0.004	1.061879	5.588729
havmil	.0089795	.0040689	2.21	0.027	.0010047	.0169544
icdxcnt	0	(no path)				
radchw1	0	(no path)				
airw1	0	(no path)				
radw1	0	(no path)				
radchw2	-.0418445	.0133722	-3.13	0.002	-.0680534	-.0156355
illw2	3.172976	.7514112	4.22	0.000	1.700237	4.645715
radw2	.0835874	.0143676	5.82	0.000	.0554274	.1117475

Table 10 Indirect effects of male structural equation model

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
avgcum~2 <-						
age	0	(no path)				
avgcumdos~1	0	(no path)				
illw1	0	(no path)				
havmil	0	(no path)				
icdxcnt	0	(no path)				
radchw1	0	(no path)				
crhtw1 <-						
age	0	(no path)				
avgcumdos~1	0	(no path)				
illw1	0	(no path)				
havmil	0	(no path)				
radchw1	0	(no path)				
airw1	0	(no path)				
radw1	0	(no path)				
crhtw2 <-						
avgcumdos~2	0	(no path)				
crhtw1	0	(no path)				
age	.0132389	.003023	4.38	0.000	.0073139	.0191639
avgcumdos~1	.0962143	.0426232	2.26	0.024	.0126743	.1797543
illw1	.0458378	.0474532	0.97	0.334	-.0471688	.1388444
havmil	-.0007973	.0003369	-2.37	0.018	-.0014576	-.0001371
icdxcnt	.0022016	.001912	1.15	0.250	-.0015459	.0059491
radchw1	-.000414	.0010116	-0.41	0.682	-.0023967	.0015687
airw1	.0078897	.0010418	7.57	0.000	.0058478	.0099316
radw1	.0024565	.0009205	2.67	0.008	.0006523	.0042607
radchw2	0	(no path)				
illw2	0	(no path)				
radw2	0	(no path)				
PTSDw1 <-						
crhtw1	0	(no path)				
age	1.439113	.6382586	2.25	0.024	.1881494	2.690077
avgcumdos~1	2.339364	1.122108	2.08	0.037	.140073	4.538654
illw1	4.171198	5.005803	0.83	0.405	-5.639996	13.98239
havmil	-.0849753	.0513746	-1.65	0.098	-.1856677	.0157172
icdxcnt	0	(no path)				
radchw1	-.0624437	.1086569	-0.57	0.566	-.2754073	.1505199
airw1	.8761098	.35776	2.45	0.014	.1749131	1.577306
radw1	.2727822	.0530673	5.14	0.000	.1687721	.3767922

Table 10-continued...

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
PTSDw2 <-						
avgcumdos~2	.1851171	.099792	1.86	0.064	-.0104717	.3807058
crhtw1	10.42224	3.061197	3.40	0.001	4.422399	16.42207
crhtw2	0	(no path)				
PTSDw1	0	(no path)				
age	.0442298	.0216272	2.05	0.041	.0018414	.0866182
avgcumdos~1	.1755403	.1482977	1.18	0.237	-.1151178	.4661985
illw1	.5144869	.5936437	0.87	0.386	-.6490333	1.678007
havmil	-.0071536	.0022963	-3.12	0.002	-.0116543	-.002653
icdxcnt	.4427534	.1283494	3.45	0.001	.1911932	.6943135
radchw1	-.0506732	.0094877	-5.34	0.000	-.0692687	-.0320777
airw1	.0521225	.0092774	5.62	0.000	.0339391	.070306
radw1	.0321118	.007493	4.29	0.000	.0174258	.0467979
radchw2	.0250228	.0070951	3.53	0.000	.0111167	.038929
illw2	.5378921	.1858477	2.89	0.004	.1736373	.9021469
radw2	.0074377	.0028587	2.60	0.009	.0018347	.0130407
MiPTSD <-						
avgcumdos~2	.2259443	.1218009	1.86	0.064	-.0127812	.4646697
crhtw1	11.53961	3.29359	3.50	0.000	5.084291	17.99493
crhtw2	.4437063	.1168496	3.80	0.000	.2146853	.6727273
PTSDw1	.0144317	.0026178	5.51	0.000	.0093009	.0195625
PTSDw2	0	(no path)				
age	.0700445	.0246427	2.84	0.004	.0217457	.1183432
avgcumdos~1	-.5279009	.3006099	-1.76	0.079	-1.117086	.0612838
illw1	.5045114	.6558992	0.77	0.442	-.7810275	1.79005
havmil	-.0077602	.0024565	-3.16	0.002	-.0125749	-.0029456
icdxcnt	.3213972	.1512048	2.13	0.034	.0250413	.6177531
radchw1	-.0590806	.0091661	-6.45	0.000	-.0770459	-.0411153
airw1	.0593114	.0087387	6.79	0.000	.0421839	.0764389
radw1	.0355546	.0075358	4.72	0.000	.0207846	.0503245
radchw2	.0198048	.0068949	2.87	0.004	.0062911	.0333185
illw2	1.129847	.2735332	4.13	0.000	.5937316	1.665962
radw2	.0233133	.0055199	4.22	0.000	.0124945	.034132

Table 11 Total effects of male structural equation model

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
avgcum~2 <-						
age	.0042741	.0030971	1.38	0.168	-.0017961	.0103442
avgcumdos~1	1.150662	.0219955	52.31	0.000	1.107552	1.193772
illw1	.1267012	.0977114	1.30	0.195	-.0648096	.3182121
havmil	-.0004914	.0003429	-1.43	0.152	-.0011634	.0001806
icdxcnt	.0337108	.0229542	1.47	0.142	-.0112785	.0787002
radchw1	.0022718	.0009887	2.30	0.022	.000334	.0042097
crhtw1 <-						
age	.0162549	.0037448	4.34	0.000	.0089152	.0235945
avgcumdos~1	.0264232	.0166899	1.58	0.113	-.0062883	.0591348
illw1	.0471139	.0587031	0.80	0.422	-.0679421	.1621699
havmil	-.0009598	.00042	-2.29	0.022	-.0017831	-.0001365
radchw1	-.0007053	.0012619	-0.56	0.576	-.0031786	.001768
airw1	.0098957	.0012683	7.80	0.000	.00741	.0123815
radw1	.0030811	.0011504	2.68	0.007	.0008263	.0053359
crhtw2 <-						
avgcumdos~2	.065308	.0352059	1.86	0.064	-.0036943	.1343104
crhtw1	.7972845	.0253508	31.45	0.000	.7475978	.8469712
age	.0132389	.003023	4.38	0.000	.0073139	.0191639
avgcumdos~1	-.0141592	.019643	-0.72	0.471	-.0526588	.0243404
illw1	.0458378	.0474532	0.97	0.334	-.0471688	.1388444
havmil	-.0007973	.0003369	-2.37	0.018	-.0014576	-.0001371
icdxcnt	.0620682	.0149948	4.14	0.000	.0326789	.0914575
radchw1	-.0081648	.001342	-6.08	0.000	-.010795	-.0055346
airw1	.0078897	.0010418	7.57	0.000	.0058478	.0099316
radw1	.0024565	.0009205	2.67	0.008	.0006523	.0042607
radchw2	.0088279	.0009278	9.51	0.000	.0070094	.0106463
illw2	.1897646	.0424434	4.47	0.000	.1065771	.2729521
radw2	.002624	.0007346	3.57	0.000	.0011842	.0040638
PTSDw1 <-						
crhtw1	88.53432	33.19479	2.67	0.008	23.47373	153.5949
age	.0727153	.166997	0.44	0.663	-.2545928	.4000235
avgcumdos~1	2.339364	1.122108	2.08	0.037	.140073	4.538654
illw1	4.171198	5.005803	0.83	0.405	-5.639996	13.98239
havmil	-.0530794	.0179578	-2.96	0.003	-.088276	-.0178828
icdxcnt	2.894117	1.166754	2.48	0.013	.6073206	5.180914
radchw1	-.2986091	.05428	-5.50	0.000	-.4049959	-.1922223
airw1	.3227876	.0548931	5.88	0.000	.215199	.4303761
radw1	.2727822	.0530673	5.14	0.000	.1687721	.3767922

Continued on the next page...

Table 11 continued...

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
PTSDw2 <-						
avgcumdos~2	.1851171	.099792	1.86	0.064	-.0104717	.3807058
crhtw1	10.42224	3.061197	3.40	0.001	4.422399	16.42207
crhtw2	2.834522	.7464686	3.80	0.000	1.371471	4.297574
PTSDw1	.0921938	.0167231	5.51	0.000	.059417	.1249706
age	.1676317	.0540941	3.10	0.002	.0616092	.2736542
avgcumdos~1	-.4331162	.3845588	-1.13	0.260	-1.186838	.3206053
illw1	.5144869	.5936437	0.87	0.386	-.6490333	1.678007
havmil	-.0071536	.0022963	-3.12	0.002	-.0116543	-.002653
icdxcnt	-.5944098	.4005187	-1.48	0.138	-1.379412	.1905925
radchw1	-.0506732	.0094877	-5.34	0.000	-.0692687	-.0320777
airw1	.0521225	.0092774	5.62	0.000	.0339391	.070306
radw1	.0321118	.007493	4.29	0.000	.0174258	.0467979
radchw2	-.0435665	.0178722	-2.44	0.015	-.0785954	-.0085375
illw2	3.56162	1.069887	3.33	0.001	1.46468	5.65856
radw2	.098376	.0188778	5.21	0.000	.0613763	.1353757
MiPTSD <-						
avgcumdos~2	-.3091107	.2489826	-1.24	0.214	-.7971076	.1788862
crhtw1	11.53961	3.29359	3.50	0.000	5.084291	17.99493
crhtw2	3.45967	.560946	6.17	0.000	2.360237	4.559104
PTSDw1	.0991849	.0130491	7.60	0.000	.0736092	.1247606
PTSDw2	.1565365	.0398818	3.93	0.000	.0783697	.2347033
age	.15812	.0426605	3.71	0.000	.0745071	.241733
avgcumdos~1	-.5279009	.3006099	-1.76	0.079	-1.117086	.0612838
illw1	3.829815	1.325412	2.89	0.004	1.232056	6.427574
havmil	.0012193	.0046767	0.26	0.794	-.0079469	.0103855
icdxcnt	.3213972	.1512048	2.13	0.034	.0250413	.6177531
radchw1	-.0590806	.0091661	-6.45	0.000	-.0770459	-.0411153
airw1	.0593114	.0087387	6.79	0.000	.0421839	.0764389
radw1	.0355546	.0075358	4.72	0.000	.0207846	.0503245
radchw2	-.0220397	.0137525	-1.60	0.109	-.0489941	.0049147
illw2	4.302823	.7770512	5.54	0.000	2.779831	5.825815
radw2	.1069007	.0142987	7.48	0.000	.0788758	.1349256

6.2 Female PTSD model

In the female path model that follows in Table 12, we observe no statistically significant direct path coefficient from Chornobyl related health threat summary score in the self-reported PTSD of wave one. Nor do we observe any statistically significant Chornobyl related health threats in waves one and two explaining or predicting self-reported PTSD in wave two. However, we do see that self-reported female PTSD in wave one predicts self-reported female PTSD in wave two. Moreover, both of those self-reports are statistically significantly associated with the Mississippi PTSD in wave three and both of the Chornobyl related health threat summary scores for waves one and two are statistically significantly associated with the Mississippi PTSD scale score for wave three.

Table 12 Female PTSD path model

(1 observations with missing values excluded;
specify option ´method(mlmv)´ to use all observations)

Endogenous variables

Observed: crhtw2 crhtw3 PTSDw1 PTSDw2 MiPTSD

Exogenous variables

Observed: crhtw1 age kmwork goferw1 fdferw2 fdferw1 havmil

Structural equation model Number of obs = 362
Estimation method = ml
Log likelihood = -16555.948

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	.5978997	.0352374	16.97	0.000	.5288356	.6669638
age	.0067204	.0028199	2.38	0.017	.0011935	.0122473
kmwork	.000302	.0001433	2.11	0.035	.0000212	.0005829
goferw1	.003697	.0009446	3.91	0.000	.0018457	.0055483
fdferw2	.0031687	.0013177	2.40	0.016	.0005861	.0057513
_cons	-.4607364	.1448095	-3.18	0.001	-.7445579	-.1769149
crhtw3 <-						
crhtw2	1.035551	.0241144	42.94	0.000	.9882879	1.082815
crhtw1	-.1126471	.0215249	-5.23	0.000	-.1548352	-.070459
goferw1	.0010505	.0004297	2.44	0.015	.0002082	.0018928
_cons	-.0216496	.0191719	-1.13	0.259	-.0592257	.0159266
PTSDw1 <-						
crhtw1	.1802023	1.830742	0.10	0.922	-3.407986	3.768391
fdferw1	.1905237	.0456693	4.17	0.000	.1010135	.2800339
_cons	10.84177	2.397857	4.52	0.000	6.14206	15.54149
PTSDw2 <-						
crhtw2	.8650436	.6682401	1.29	0.195	-.4446829	2.17477
PTSDw1	.0638212	.0127881	4.99	0.000	.038757	.0888854
crhtw1	.0940193	.6013894	0.16	0.876	-1.084682	1.272721
fdferw1	.0093967	.0116693	0.81	0.421	-.0134748	.0322682
_cons	1.852971	.6005676	3.09	0.002	.6758803	3.030062
MiPTSD <-						
crhtw2	5.61472	.863879	6.50	0.000	3.921548	7.307892
PTSDw1	.0337288	.0169678	1.99	0.047	.0004725	.0669851
PTSDw2	.2458808	.0672094	3.66	0.000	.1141528	.3776087
crhtw1	-4.723429	.7902744	-5.98	0.000	-6.272338	-3.174519
age	.1975397	.0474226	4.17	0.000	.1045931	.2904863
kmwork	-.0067987	.0036698	-1.85	0.064	-.0139914	.000394
fdferw2	.1074096	.022037	4.87	0.000	.0642178	.1506014
havmil	.0065438	.0036331	1.80	0.072	-.0005769	.0136646
_cons	36.88496	2.46019	14.99	0.000	32.06307	41.70684

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	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf. Interval]	
Variance						
e.crhtw2	.3595649	.0267262			.3108193	.4159553
e.crhtw3	.0793505	.0058981			.0685931	.091795
e.PTSDw1	1051.174	78.13318			908.6686	1216.03
e.PTSDw2	62.22138	4.624878			53.78613	71.97952
e.MiPTSD	100.934	7.502365			87.25055	116.7634

LR test of model vs. saturated: chi2(23) = 27.08, Prob > chi2 = 0.2527

. estat stable

Table 13 Stability analysis of simultaneous equation systems

Eigenvalue stability condition

Eigenvalue	Modulus
-2.198e-16 + 8.325e-09*i*	8.3e-09
-2.198e-16 - 8.325e-09*i*	8.3e-09
-2.356e-10	2.4e-10
2.356e-10	2.4e-10
0	0

stability index = 8.32e-09
All the eigenvalues lie inside the unit circle.
SEM satisfies stability condition.

From Table 14, we can observe the results with which to test hypothesis six for the females. In wave one, the data are inconsistent with the hypothesis that the summary score of health risk predicts PTSD. In wave two, we must differentiate between current and past variables representing perceived risk. There is no statistically significant relationship between the previous (wave one) or current (wave two) perceived risk summary score and self-reported PTSD in wave two. In wave three, the Mississippi scale is used for wave three. Both wave one and wave two perceived risk scores predict the wave three Mississippi scale score, as do self- reported PTSD in both previous waves.

Indirect and total scores may be found in Table 15 and 16. From Table 15, it can be observed that there are indirect effects from the wave one summary score that are statistically significantly related to PTSD in wave three. In short, the indirect effects are very important in this analysis and should not be ignored.

Table 14 Direct effects of female structural equation model for PTSD

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	.5978997	.0352374	16.97	0.000	.5288356	.6669638
age	.0067204	.0028199	2.38	0.017	.0011935	.0122473
kmwork	.000302	.0001433	2.11	0.035	.0000212	.0005829
goferw1	.003697	.0009446	3.91	0.000	.0018457	.0055483
fdferw2	.0031687	.0013177	2.40	0.016	.0005861	.0057513
crhtw3 <-						
crhtw2	1.035551	.0241144	42.94	0.000	.9882879	1.082815
crhtw1	-.1126471	.0215249	-5.23	0.000	-.1548352	-.070459
age	0	(no path)				
kmwork	0	(no path)				
goferw1	.0010505	.0004297	2.44	0.015	.0002082	.0018928
fdferw2	0	(no path)				
PTSDw1 <-						
crhtw1	.1802023	1.830742	0.10	0.922	-3.407986	3.768391
fdferw1	.1905237	.0456693	4.17	0.000	.1010135	.2800339
PTSDw2 <-						
crhtw2	.8650436	.6682401	1.29	0.195	-.4446829	2.17477
PTSDw1	.0638212	.0127881	4.99	0.000	.038757	.0888854
crhtw1	.0940193	.6013894	0.16	0.876	-1.084682	1.272721
age	0	(no path)				
kmwork	0	(no path)				
goferw1	0	(no path)				
fdferw2	0	(no path)				
fdferw1	.0093967	.0116693	0.81	0.421	-.0134748	.0322682
MiPTSD <-						
crhtw2	5.61472	.863879	6.50	0.000	3.921548	7.307892
PTSDw1	.0337288	.0169678	1.99	0.047	.0004725	.0669851
PTSDw2	.2458808	.0672094	3.66	0.000	.1141528	.3776087
crhtw1	-4.723429	.7902744	-5.98	0.000	-6.272338	-3.174519
age	.1975397	.0474226	4.17	0.000	.1045931	.2904863
kmwork	-.0067987	.0036698	-1.85	0.064	-.0139914	.000394
goferw1	0	(no path)				
fdferw2	.1074096	.022037	4.87	0.000	.0642178	.1506014
fdferw1	0	(no path)				
havmil	.0065438	.0036331	1.80	0.072	-.0005769	.0136646

Table 15 Indirect effects of female structural equation model for PTSD

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	0	(no path)				
age	0	(no path)				
kmwork	0	(no path)				
goferw1	0	(no path)				
fdferw2	0	(no path)				
crhtw3 <-						
crhtw2	0	(no path)				
crhtw1	.6191558	.0392353	15.78	0.000	.5422559	.6960556
age	.0069593	.0029246	2.38	0.017	.0012271	.0126915
kmwork	.0003128	.0001486	2.11	0.035	.0000216	.000604
goferw1	.0038285	.0009822	3.90	0.000	.0019034	.0057535
fdferw2	.0032814	.0013667	2.40	0.016	.0006028	.00596
PTSDw1 <-						
crhtw1	0	(no path)				
fdferw1	0	(no path)				
PTSDw2 <-						
crhtw2	0	(no path)				
PTSDw1	0	(no path)				
crhtw1	.5287101	.4174198	1.27	0.205	-.2894178	1.346838
age	.0058134	.0051106	1.14	0.255	-.0042031	.01583
kmwork	.0002613	.0002369	1.10	0.270	-.000203	.0007255
goferw1	.0031981	.0026021	1.23	0.219	-.001902	.0082981
fdferw2	.0027411	.0024048	1.14	0.254	-.0019722	.0074544
fdferw1	.0121595	.0037989	3.20	0.001	.0047138	.0196051
MiPTSD <-						
crhtw2	.2126976	.1643074	1.29	0.195	-.109339	.5347342
PTSDw1	.0156924	.0031443	4.99	0.000	.0095296	.0218552
PTSDw2	0	(no path)				
crhtw1	3.516235	.5733546	6.13	0.000	2.39248	4.639989
age	.0391626	.0174609	2.24	0.025	.0049399	.0733853
kmwork	.0017601	.0008761	2.01	0.045	.0000429	.0034773
goferw1	.0215441	.0063909	3.37	0.001	.0090181	.0340701
fdferw2	.0184655	.0081675	2.26	0.024	.0024575	.0344735
fdferw1	.0117264	.0048194	2.43	0.015	.0022805	.0211722
havmil	0	(no path)				

Table 16 Total effects of female structural equation model for PTSD

	Coef.	OIM Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	.5978997	.0352374	16.97	0.000	.5288356	.6669638
age	.0067204	.0028199	2.38	0.017	.0011935	.0122473
kmwork	.000302	.0001433	2.11	0.035	.0000212	.0005829
goferw1	.003697	.0009446	3.91	0.000	.0018457	.0055483
fdferw2	.0031687	.0013177	2.40	0.016	.0005861	.0057513
crhtw3 <-						
crhtw2	1.035551	.0241144	42.94	0.000	.9882879	1.082815
crhtw1	.5065086	.0397895	12.73	0.000	.4285227	.5844946
age	.0069593	.0029246	2.38	0.017	.0012271	.0126915
kmwork	.0003128	.0001486	2.11	0.035	.0000216	.000604
goferw1	.0048789	.0010626	4.59	0.000	.0027964	.0069615
fdferw2	.0032814	.0013667	2.40	0.016	.0006028	.00596
PTSDw1 <-						
crhtw1	.1802023	1.830742	0.10	0.922	-3.407986	3.768391
fdferw1	.1905237	.0456693	4.17	0.000	.1010135	.2800339
PTSDw2 <-						
crhtw2	.8650436	.6682401	1.29	0.195	-.4446829	2.17477
PTSDw1	.0638212	.0127881	4.99	0.000	.038757	.0888854
crhtw1	.6227294	.4615092	1.35	0.177	-.281812	1.527271
age	.0058134	.0051106	1.14	0.255	-.0042031	.01583
kmwork	.0002613	.0002369	1.10	0.270	-.000203	.0007255
goferw1	.0031981	.0026021	1.23	0.219	-.001902	.0082981
fdferw2	.0027411	.0024048	1.14	0.254	-.0019722	.0074544
fdferw1	.0215562	.0117725	1.83	0.067	-.0015175	.0446299
MiPTSD <-						
crhtw2	5.827418	.8793656	6.63	0.000	4.103893	7.550943
PTSDw1	.0494212	.0172567	2.86	0.004	.0155987	.0832437
PTSDw2	.2458808	.0672094	3.66	0.000	.1141528	.3776087
crhtw1	-1.207194	.6409172	-1.88	0.060	-2.463368	.0489807
age	.2367023	.049625	4.77	0.000	.139439	.3339655
kmwork	-.0050386	.0037553	-1.34	0.180	-.0123989	.0023217
goferw1	.0215441	.0063909	3.37	0.001	.0090181	.0340701
fdferw2	.1258751	.0230024	5.47	0.000	.0807912	.170959
fdferw1	.0117264	.0048194	2.43	0.015	.0022805	.0211722
havmil	.0065438	.0036331	1.80	0.072	-.0005769	.0136646

Table 17 Robust Female Path Model.
(1 observations with missing values excluded;
specify option ´method(mlmv)´ to use all observations)

Endogenous variables

Observed: crhtw2 crhtw3 PTSDw1 PTSDw2 MiPTSD

Exogenous variables

Observed: crhtw1

Fitting target model:

Iteration 0: log pseudolikelihood = -5310.8935
Iteration 1: log pseudolikelihood = -5310.8935

Structural equation model Number of obs = 362
Estimation method = ml
Log pseudolikelihood= -5310.8935

(Std. Err. adjusted for 362 clusters in id)

	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
Structural						
crhtw2 <-						
crhtw1	.6298151	.0400677	15.72	0.000	.5512839	.7083464
_cons	.0885394	.0360796	2.45	0.014	.0178246	.1592541
crhtw3 <-						
crhtw2	1.051234	.0277728	37.85	0.000	.9967999	1.105667
crhtw1	-.1166559	.0316122	-3.69	0.000	-.1786147	-.054697
_cons	.0072487	.0158942	0.46	0.648	-.0239034	.0384008
PTSDw1 <-						
crhtw1	1.423881	1.804336	0.79	0.430	-2.112553	4.960315
_cons	17.80774	1.740305	10.23	0.000	14.3968	21.21867
PTSDw2 <-						
crhtw2	.9851263	.5144778	1.91	0.056	-.0232317	1.993484
PTSDw1	.0659966	.0151775	4.35	0.000	.0362494	.0957439
crhtw1	.0766308	.5442594	0.14	0.888	-.9900981	1.14336
_cons	2.147164	.2859438	7.51	0.000	1.586725	2.707604
MiPTSD <-						
crhtw2	3.611711	2.45526	1.47	0.141	-1.20051	8.423931
crhtw3	3.099064	2.173102	1.43	0.154	-1.160138	7.358265
PTSDw1	.0583282	.0187505	3.11	0.002	.0215779	.0950785
PTSDw2	.2669377	.0937	2.85	0.004	.0832891	.4505864
crhtw1	-4.365202	.9294167	-4.70	0.000	-6.186826	-2.543579
_cons	47.04229	.5888074	79.89	0.000	45.88825	48.19634
Variance						
e.crhtw2	.4056681	.0388891			.3361793	.4895204
e.crhtw3	.0806603	.0123716			.0597178	.1089472
e.PTSDw1	1101.712	98.1412			925.2148	1311.879
e.PTSDw2	62.33283	25.07038			28.33753	137.1108
e.MiPTSD	111.4816	11.44536			91.16201	136.3304

. estat stable

Stability analysis of simultaneous equation systems

Eigenvalue stability condition

Eigenvalue	Modulus
2.597e-08	2.6e-08
-2.597e-08	2.6e-08
-2.796e-17 + 1.313e-09*i*	1.3e-09
-2.796e-17 - 1.313e-09*i*	1.3e-09
8.882e-16	8.9e-16

```
   stability index =  2.60e-08
   All the eigenvalues lie inside the unit circle.
   SEM satisfies stability condition.

. estat teffects

Direct effects
                                    (Std. Err. adjusted for 362 clusters in id)
```

	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	.6298151	.0400677	15.72	0.000	.5512839	.7083464
crhtw3 <-						
crhtw2	1.051234	.0277728	37.85	0.000	.9967999	1.105667
crhtw1	-.1166559	.0316122	-3.69	0.000	-.1786147	-.054697
PTSDw1 <-						
crhtw1	1.423881	1.804336	0.79	0.430	-2.112553	4.960315
PTSDw2 <-						
crhtw2	.9851263	.5144778	1.91	0.056	-.0232317	1.993484
PTSDw1	.0659966	.0151775	4.35	0.000	.0362494	.0957439
crhtw1	.0766308	.5442594	0.14	0.888	-.9900981	1.14336
MiPTSD <-						
crhtw2	3.611711	2.45526	1.47	0.141	-1.20051	8.423931
crhtw3	3.099064	2.173102	1.43	0.154	-1.160138	7.358265
PTSDw1	.0583282	.0187505	3.11	0.002	.0215779	.0950785
PTSDw2	.2669377	.0937	2.85	0.004	.0832891	.4505864
crhtw1	-4.365202	.9294167	-4.70	0.000	-6.186826	-2.543579

Indirect effects

(Std. Err. adjusted for 362 clusters in id)

	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	0	(no path)				
crhtw3 <-						
crhtw2	0	(no path)				
crhtw1	.6620828	.0497097	13.32	0.000	.5646536	.759512
PTSDw1 <-						
crhtw1	0	(no path)				
PTSDw2 <-						
crhtw2	0	(no path)				
PTSDw1	0	(no path)				
crhtw1	.7144187	.3638013	1.96	0.050	.0013813	1.427456
MiPTSD <-						
crhtw2	3.520807	.1764301	19.96	0.000	3.17501	3.866604
crhtw3	0	(no path)				
PTSDw1	.017617	.0040514	4.35	0.000	.0096763	.0255577
PTSDw2	0	(no path)				
crhtw1	4.259236	.7494689	5.68	0.000	2.790304	5.728168

Total effects

(Std. Err. adjusted for 362 clusters in id)

	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
crhtw2 <-						
crhtw1	.6298151	.0400677	15.72	0.000	.5512839	.7083464
crhtw3 <-						
crhtw2	1.051234	.0277728	37.85	0.000	.9967999	1.105667
crhtw1	.5454269	.0449103	12.14	0.000	.4574044	.6334495
PTSDw1 <-						
crhtw1	1.423881	1.804336	0.79	0.430	-2.112553	4.960315
PTSDw2 <-						
crhtw2	.9851263	.5144778	1.91	0.056	-.0232317	1.993484
PTSDw1	.0659966	.0151775	4.35	0.000	.0362494	.0957439
crhtw1	.7910495	.4830154	1.64	0.101	-.1556434	1.737742
MiPTSD <-						
crhtw2	7.132518	2.483768	2.87	0.004	2.264423	12.00061
crhtw3	3.099064	2.173102	1.43	0.154	-1.160138	7.358265
PTSDw1	.0759452	.0187906	4.04	0.000	.0391163	.1127741
PTSDw2	.2669377	.0937	2.85	0.004	.0832891	.4505864
crhtw1	-.1059661	.7470832	-0.14	0.887	-1.570222	1.35829

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