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

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1 Acknowledgements

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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.

Table 1 upper panel: HADRI panel unit root test for male MiPTSD

Hadri LM test for MiPTSD

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 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.

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Table 2 Male Panel analysis of MiPTSD with covariates

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	= 0.8059
Estimated autocorrelations	= 1	Wald chi2(6)	= 20384.23
Estimated coefficients	= 16	Prob > chi2	= 0.0000

MiPTSD	Panel-corrected Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
wave						
2	1.489014	.7684152	1.94	0.053	-.0170519	2.99508
3	1.417658	.7703559	1.84	0.066	-.0922117	2.927528
sector						
2	-2.759935	2.40392	-1.15	0.251	-7.471531	1.951661
3	-5.786851	1.997694	-2.90	0.004	-9.70226	-1.871443
4	-9.606059	2.120585	-4.53	0.000	-13.76233	-5.449789
5	.8579977	1.238599	0.69	0.488	-1.569611	3.285606
6	.6557943	1.58063	0.41	0.678	-2.442183	3.753771
depagw	.0063007	.0168446	0.37	0.708	-.0267141	.0393154
anxagw	.0331236	.0267313	1.24	0.215	-.0192688	.0855159
crhtw	3.677854	.4769025	7.71	0.000	2.743142	4.612566
radchw	-.0533456	.0081003	-6.59	0.000	-.069222	-.0374692
fdferw	.0823873	.0281822	2.92	0.003	.0271512	.1376235
goferw	-.0230595	.0129036	-1.79	0.074	-.0483501	.0022311
defnw	.0103786	.0061765	1.68	0.093	-.0017271	.0224842
havmil	.0080197	.0018376	4.36	0.000	.0044181	.0116214
_cons	51.32192	2.879022	17.83	0.000	45.67914	56.96469
rho	.6595564					

5 Potential moderating effects

However, when moderators were tested, the interaction between relocating oneself and Chornobyl related health threat was found to be statistically significant as was

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