Supplemental Material:

PTSD Near and Far: Symptom Networks from Two to 12 Months after the Virginia Tech

Campus Shootings

Figure S1. As we note in the manuscript, we recovered a relatively high proportion of negative edges. The purpose of this figure is to depict all edges at a bivariate level so that the LASSO and association networks can be compared.

Table S1. This table reports the top edge weights and the percentage of within network significant differences at two and 12 months. The purpose of this table is to provide descriptive information on edge weights and their differences within-network.

Tables S2 and S3. These tables report all negative edges for the LASSO network model. The purpose of this table is to provide descriptive information on the negative edges at two to 12 months.

Table S4. This table provides *p* values for edge weight differences using the NCT at two and 12 months (van Borkulo et al., 2016). Consistent with our LASSO networks, the hyperparameter was set at .05 for these comparisons. The purpose of the table is to report the full results of all edge weight differences.

Table S5. This table fully provides more detail on the regression analysis predicting total PTSD symptom scores at 12 months from individual PTSD symptoms scores at two months. The purpose of the table is to report the full results of the regression analysis.
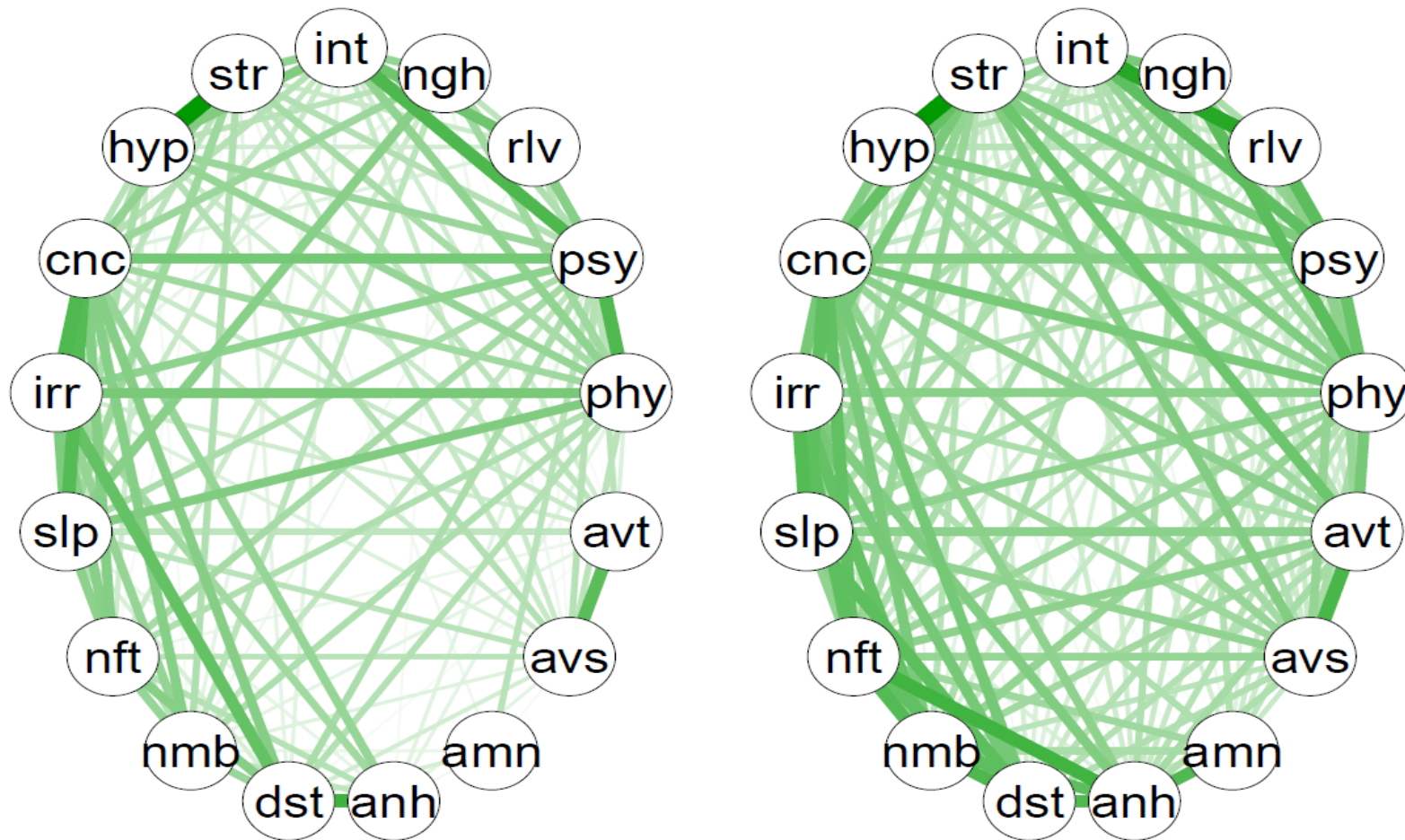
Figure S1. Association networks (*r* > .20) at two (left) and 12 months (right). *Note:* The strength of the association is indicated by the thickness of the line. Int = intrusive thoughts; ngh = distressing dreams; rlv = reliving or flashbacks; psy = psychological distress; phy = physiological reactions; avt = avoidance of thoughts; avs = avoidance of situations; amn = amnesia; dtc = loss of interest; dst = feeling distant; nmb = feeling numb; nft = no future; slp = sleep difficulties; irr = irritability or anger; cnc = concentration difficulties; hyp = hypervigilance; str = exaggerated startle.

Table S1.

Top edge weights and within network significant differences at two and 12 months

Symptom edge	Edge weight	Within network significant edge weight differences [a]
Two months (k = 97)		
1. Hypervigilance – startle	0.72	(96.9%)
2. Avoid situations – avoid thoughts	0.55	(86.5%)
3. Anhedonia – distant	0.55	(72.9%)
4. Psychological reactivity – amnesia	0.44	(68.0%)
5. Psychological reactivity – physiological	0.39	(60.8%)
6. Psychological reactivity – intrusions	0.32	(34.0%)
7. Distant – irritation	0.31	(26.5%)
8. Nightmares – sleep	0.30	(27.8%)
9. Reliving – intrusions	0.28	(17.5%)
10. Numb – startle	0.27	(19.6%)
12 months (k = 78)		
1. Hypervigilance – startle	0.66	(96.2%)
2. Reliving - intrusions	0.61	(93.6%)
3. Anhedonia – amnesia	0.47	(65.3%)
4. Avoid situations – avoid thoughts	0.43	(60.3%)
5. Sleep – distant	0.40	(64.1%)
6. Anhedonia – distant	0.34	(62.8%)
7. Reliving – psychological reactivity	0.33	(12.8%)
8. Physiological – nightmares	0.33	(21.8%)
9. Sleep – irritation	0.32	(17.9%)
10. Anhedonia – no future	0.31	(10.2%)

Note: [a] Based on bootstrapped confidence intervals of within network edge weight differences that exclude zero.

Percentage based on count of significant edge weight differences divided by total number of network edges (*k-1*) recovered at each time point.

Table S2.

Negative LASSO edges, bivariate correlations (*r*), and difference at 2 months

Edge	LASSO	*r*	Difference
Amnesia - startle	-.32	.08	.40
Numbness – hypervigilance	-.27	.23	.50
Nightmares - feeling distant	-.26	.12	.38
Intrusions - no future	-.20	.19	.39
No Future - startle	-.18	.23	.41
Amnesia – concentration	-.13	.12	.25
Anhedonia – startle	-.13	.14	.27
Nightmares – amnesia	-.12	.05	.17
Nightmares – irritation	-.11	.25	.36
Intrusions – amnesia	-.11	.15	.26
Reliving – sleep	-.11	.18	.29
Psychological – startle	-.09	.37	.46
Psychological – anhedonia	-.09	.27	.36
Anhedonia – sleep	-.08	.26	.34
Psychological – numb	-.07	.34	.41
Distant – hypervigilance	-.07	.20	.27
Concentration – hypervigilance	-.06	.36	.42
Avoid thoughts – anhedonia	-.06	.17	.23
Physiological – concentration	-.05	.41	.46
Reliving – distant	-.05	.13	.18
Physiological - amnesia	-.04	.20	.24
Intrusions – sleep	-.03	.32	.35
Reliving – no future	-.03	.15	.18
Reliving – irritation	-.03	.17	.20
Psychological – sleep	-.02	.39	.41

Table S3.

Negative LASSO edges, bivariate correlations (*r*), and difference at 12 months

Edge weight	LASSO	*r*	Difference
Anhedonia – sleep	-.24	.29	.34
Amnesia – concentration	-.16	.22	.25
Nightmares – distant	-.10	.28	.38
Nightmares – avoid thoughts	-.09	.29	.30
Anhedonia – hypervigilance	-.06	.23	.29
Intrusion – irritation	-.05	.26	.31
Distant – hypervigilance	-.04	.23	.27
Intrusions – concentration	-.03	.32	.35
Nightmares – concentration	-.02	.33	.37
Intrusions – amnesia	-.01	.24	.25

Table S4. P values for NCT permutation test of edge weight differences at two and 12 months in LASSO networks (*N* = 212).

Symptom	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Intrusions	--															
2. Dreams	.52	--														
3. Reliving	.03	.36	--													
4. Psychological	.10	--	.43	--												
5. Physiological	--	.13	.54	.13	--											
6. Avoid thoughts	.80	1	--	.68	.02	--										
7. Avoid reminders	.91	--	--	.49	.34	.58	--									
8. Amnesia	1	.03	--	.10	1	.40	.97	--								
9. Anhedonia	1	.86	.13	1	--	.41	.99	.01	--							
10. Feeling distant	1	1	1	--	--	--	.--	.03	.06	--						
11. Feeling numb	--	.64	1	--	.98	.89	--	.81	.32	.22	--					
12. No future	.04	.97	1	.06	--	.30	.64	--	.03	.58	.83	--				
13. Sleep	.31	.05	1	.35	.33	.90	.45	--	1	.0001*	.92	.10	--			
14. Irritability	1	.14	1	.63	.39	.44	--	.001*	.53	.09	.45	.49	.10	--		
15. Concentration	1	.03	1	.70	.09	.50	.--	.49	.33	.82	.54	.43	.61	.06	--	
16. Hypervigilance	.63	.71	--	.27	.63	--	.39	--	.59	.33	1	.71	--	.13	.39	--
17. Startle	.34	--	.51	.16	.98	.35	.23	.67	1	1	.17	1	.39	.03	.60	.96

Note: Absent *p* values indicate that the edge was not recovered at either two or 12 months. Hyper-parameter was set at .5. When a correction for false discovery rate was

applied simultaneously to all comparisons, two values remained significant (*10 – 13, *p* = .01; 8 – 14, *p* = .05). The remainder were *p* > .32

Table S5.

Regression analysis predicting total PTSD symptoms at 12 months from each PTSD symptom score

at two months

Symptom	*B*	*SE*	*95% CI*	*sr^2*	*p* (corrected)
Intrusive thoughts/images	.77	.78	-.77, 3.84	.05	.33 (.55
Distressing dreams	1.71	.92	-.10, 3.52	.09	.06 (.23)
Reliving or flashbacks	2.39	.81	.78, 3.99	.14	.003 (.051)
Psychological reactivity	.65	.83	-1.0, 2.29	.04	.44 (.57)
Physiological reactivity	-.20	.86	-.1.98, 1.40	-.02	.73 (.73)
Avoidance of thoughts	.54	.57	-.59, 1.67	.05	.35 (.55)
Avoidance of situation	1.27	.70	-.11, 2.65	.09	.07 (.23)
Amnesia	-.91	1.06	-3.01, 1.19	-.04	.39 (.55)
Anhedonia	2.91	1.07	-.80, 5.01	.13	.007 (.059)
Feeling distant	-.59	.90	-2.36, 1.18	-.03	.51 (.57)
Feeling numb	1.32	.75	-.17, 2.80	.08	.08 (.23)
No future	.54	.78	-.99, 2.07	.03	.49 (.57)
Sleep difficulties	-.54	.63	-1.78, .70	-.04	.39 (.55)
Irritability or anger	.52	.83	-1.13, 2.16	.03	.54 (.57)
Concentration difficulties	1.31	.74	-.16, 2.72	.09	.08 (.23)
Hypervigilance	1.11	.74	-.35, 2.57	.07	.14 (.33)
Exaggerated startle	.90	.75	-.59, 2.38	.06	.23 (.49)

Note: Corrected indicates an adjustment using the false discovery rate.

$F(17, 194) = 13.19$, $p < .001$, $R^2 = .55$