```
1 .
2 . use chwide12jul2012, clear
  (Chornobyl sequelae for both sexes   women=362  men = 340 wide format)

3 .
4 .
5 . ***** Multivariate preliminaries owing to intercorrelation of Nottingham----
  > ---
6 .
7 . pwcorr WHPpain WHPsleep WHPsociso WHPpa WHPel if gender==1, sig obs
```

	WHPpain	WHPsleep	WHPsoc~o	WHPpa	WHPel
WHPpain	1.0000				
	339				
WHPsleep	0.4684	1.0000			
	0.0000				
	339	339			
WHPsociso	0.2215	0.3460	1.0000		
	0.0000	0.0000			
	339	339	339		
WHPpa	0.6997	0.3521	0.2174	1.0000	
	0.0000	0.0000	0.0001		
	339	339	339	339	
WHPel	0.4850	0.4570	0.3234	0.5110	1.0000
	0.0000	0.0000	0.0000	0.0000	
	339	339	339	339	339

```
8 . pwcorr  WHPpain WHPsleep WHPsociso WHPpa WHPel if gender==2, sig obs
```

	WHPpain	WHPsleep	WHPsoc~o	WHPpa	WHPel
WHPpain	1.0000				
	363				
WHPsleep	0.5549	1.0000			
	0.0000				
	363	363			
WHPsociso	0.4217	0.4147	1.0000		
	0.0000	0.0000			
	363	363	363		

```
         |
   WHPpa |   0.7375   0.5351   0.4857   1.0000
         |   0.0000   0.0000   0.0000
         |      363      363      363      363
         |
   WHPel |   0.5971   0.5201   0.4877   0.5453   1.0000
         |   0.0000   0.0000   0.0000   0.0000
         |      363      363      363      363      363
         |

 9 .
10 .
11 . forvalues i=1/3 {
     2. forvalues k=1/2 {
     3. set more off
     4. di _skip(5)
     5. di "Gender=`k' and Wave = `i' :"
     6. mvreg  WHPpain WHPsleep WHPsociso WHPpa WHPel = crhtw`i' avgcumdosew`i' i
   > cdxcnt  ///
   >    airw`i' radchw`i' kzchorn radhlw`i' if gender==`k'
     7. }
     8. }

   Gender=1 and Wave = 1 :

   Equation          Obs  Parms        RMSE    "R-sq"          F        P
   ----------------------------------------------------------------------
   WHPpain           339      8     15.3318    0.1510   8.410375   0.0000
   WHPsleep          339      8    22.76703    0.1777   10.21632   0.0000
   WHPsociso         339      8    14.69917    0.0425   2.097829   0.0433
   WHPpa             339      8    13.71099    0.1319   7.184036   0.0000
   WHPel             339      8     27.8535    0.1579   8.865227   0.0000

   ------------------------------------------------------------------------------
                   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
   ----------------+-------------------------------------------------------------
   WHPpain         |
         crhtw1    |    1.60277   3.928732     0.41   0.684    -6.125661    9.331202
   avgcumdosew1    |   .9205603   .5050912     1.82   0.069    -.0730334    1.914154
        icdxcnt    |   2.121661   .5315656     3.99   0.000     1.075988    3.167334
          airw1    |  -.0504635   .0263157    -1.92   0.056    -.1022307    .0013036
        radchw1    |   .0365439    .023842     1.53   0.126    -.0103569    .0834448
        kzchorn    |   .1380775   .0382325     3.61   0.000     .0628682    .2132868
        radhlw1    |    .002778   .0950969     0.03   0.977    -.1842924    .1898484
          _cons    |  -3.140905   6.338151    -0.50   0.621    -15.60904    9.327231
   ----------------+-------------------------------------------------------------
   WHPsleep        |
         crhtw1    |   14.15144   5.833989     2.43   0.016     2.675073    25.62782
   avgcumdosew1    |   1.582937   .7500376     2.11   0.036     .1074954    3.058379
```

icdxcnt	2.834986	.7893509	3.59	0.000	1.282209	4.387763
airw1	-.0270872	.0390777	-0.69	0.489	-.1039591	.0497846
radchw1	-.0232884	.0354042	-0.66	0.511	-.0929341	.0463572
kzchorn	.1483994	.0567735	2.61	0.009	.036717	.2600818
radhlw1	-.2265539	.1412145	-1.60	0.110	-.504345	.0512372
_cons	15.43901	9.411867	1.64	0.102	-3.075605	33.95363
WHPsociso						
crhtw1	7.32153	3.766623	1.94	0.053	-.0880079	14.73107
avgcumdosew1	.4242691	.4842499	0.88	0.382	-.5283264	1.376865
icdxcnt	1.623271	.5096319	3.19	0.002	.6207454	2.625797
airw1	-.0007953	.0252299	-0.03	0.975	-.0504264	.0488358
radchw1	-.0008975	.0228582	-0.04	0.969	-.0458631	.0440682
kzchorn	-.0363218	.0366549	-0.99	0.322	-.1084277	.0357842
radhlw1	-.1593334	.0911729	-1.75	0.081	-.3386848	.020018
_cons	13.62397	6.076623	2.24	0.026	1.670301	25.57764
WHPpa						
crhtw1	3.45636	3.513403	0.98	0.326	-3.455054	10.36777
avgcumdosew1	-.2223617	.4516951	-0.49	0.623	-1.110917	.6661933
icdxcnt	2.107252	.4753707	4.43	0.000	1.172123	3.042381
airw1	-.0092925	.0235337	-0.39	0.693	-.0555871	.037002
radchw1	.036409	.0213215	1.71	0.089	-.0055337	.0783517
kzchorn	.0628612	.0341907	1.84	0.067	-.0043972	.1301197
radhlw1	-.0324945	.0850436	-0.38	0.703	-.1997886	.1347996
_cons	1.311476	5.668107	0.23	0.817	-9.83858	12.46153
WHPel						
crhtw1	13.44908	7.137382	1.88	0.060	-.5912658	27.48943
avgcumdosew1	1.059192	.9176063	1.15	0.249	-.7458833	2.864268
icdxcnt	5.877843	.9657027	6.09	0.000	3.978155	7.777532
airw1	-.070062	.0478081	-1.47	0.144	-.164108	.0239841
radchw1	.0017565	.043314	0.04	0.968	-.083449	.0869619
kzchorn	-.0161482	.0694575	-0.23	0.816	-.152782	.1204856
radhlw1	-.1726867	.1727638	-1.00	0.318	-.5125401	.1671668
_cons	25.29133	11.51461	2.20	0.029	2.640295	47.94237

Gender=2 and Wave = 1 :

Equation	Obs	Parms	RMSE	"R-sq"	F	P
WHPpain	361	8	21.53444	0.0895	4.958861	0.0000
WHPsleep	361	8	29.68006	0.0995	5.574	0.0000
WHPsociso	361	8	18.33855	0.0667	3.604492	0.0009
WHPpa	361	8	20.41656	0.1113	6.315119	0.0000
WHPel	361	8	33.60295	0.0674	3.645999	0.0008

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
WHPpain						
crhtw1	2.676171	6.018676	0.44	0.657	-9.160802	14.51314
avgcumdosew1	6.793823	2.083308	3.26	0.001	2.696566	10.89108
icdxcnt	1.873035	.5106202	3.67	0.000	.8687945	2.877275
airw1	-.0569965	.0355283	-1.60	0.110	-.1268702	.0128772
radchw1	-.0062609	.0356803	-0.18	0.861	-.0764336	.0639118
kzchorn	.0348314	.0459614	0.76	0.449	-.0555613	.125224
radhlw1	-.0064522	.1491288	-0.04	0.966	-.2997448	.2868404
_cons	11.34787	9.629394	1.18	0.239	-7.590331	30.28606
WHPsleep						
crhtw1	10.99809	8.295304	1.33	0.186	-5.31634	27.31253
avgcumdosew1	8.326945	2.871342	2.90	0.004	2.679857	13.97403
icdxcnt	2.290704	.7037678	3.25	0.001	.9065989	3.674809
airw1	-.0275248	.0489672	-0.56	0.574	-.1238289	.0687793
radchw1	-.0758946	.0491768	-1.54	0.124	-.1726109	.0208216
kzchorn	.0749472	.0633468	1.18	0.238	-.0496375	.1995319
radhlw1	-.1272862	.2055383	-0.62	0.536	-.5315199	.2769474
_cons	22.66345	13.27181	1.71	0.089	-3.43832	48.76522
WHPsociso						
crhtw1	.4874573	5.125454	0.10	0.924	-9.59281	10.56772
avgcumdosew1	4.332656	1.774128	2.44	0.015	.843466	7.821846
icdxcnt	.6015537	.4348399	1.38	0.167	-.253649	1.456756
airw1	-.0337669	.0302556	-1.12	0.265	-.0932707	.0257369
radchw1	-.0077123	.030385	-0.25	0.800	-.0674708	.0520462
kzchorn	.0655127	.0391404	1.67	0.095	-.0114649	.1424903
radhlw1	.0727227	.1269968	0.57	0.567	-.1770428	.3224882
_cons	.4137105	8.200311	0.05	0.960	-15.7139	16.54132
WHPpa						
crhtw1	6.420227	5.706242	1.13	0.261	-4.802278	17.64273
avgcumdosew1	4.439794	1.975162	2.25	0.025	.5552288	8.324359
icdxcnt	2.023258	.4841135	4.18	0.000	1.071149	2.975368
airw1	-.0257814	.033684	-0.77	0.445	-.0920279	.0404651
radchw1	.0316934	.0338281	0.94	0.349	-.0348366	.0982234
kzchorn	.0365017	.0435755	0.84	0.403	-.0491986	.122202
radhlw1	-.0554859	.1413874	-0.39	0.695	-.3335535	.2225816
_cons	9.879155	9.129524	1.08	0.280	-8.075943	27.83425
WHPel						
crhtw1	9.499951	9.391714	1.01	0.312	-8.970799	27.9707
avgcumdosew1	5.997572	3.250854	1.84	0.066	-.3959042	12.39105
icdxcnt	2.284964	.7967864	2.87	0.004	.7179182	3.852009
airw1	-.0793927	.0554393	-1.43	0.153	-.1884256	.0296401
radchw1	-.023509	.0556766	-0.42	0.673	-.1330085	.0859904

kzchorn	.1149091	.0717195	1.60	0.110	-.0261422	.2559604
radhlw1	-.1366917	.2327048	-0.59	0.557	-.5943538	.3209705
_cons	27.02639	15.02598	1.80	0.073	-2.525309	56.57809

Gender=1 and Wave = 2 :

Equation	Obs	Parms	RMSE	"R-sq"	F	P
WHPpain	339	8	15.07884	0.1788	10.29475	0.0000
WHPsleep	339	8	22.68427	0.1836	10.63668	0.0000
WHPsociso	339	8	14.46336	0.0730	3.721262	0.0007
WHPpa	339	8	13.43549	0.1664	9.440799	0.0000
WHPel	339	8	27.44496	0.1824	10.54937	0.0000

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
WHPpain						
crhtw2	3.922832	3.032345	1.29	0.197	-2.042266	9.887929
avgcumdosew2	.5009859	.3319151	1.51	0.132	-.1519432	1.153915
icdxcnt	1.586973	.5274369	3.01	0.003	.5494216	2.624524
airw2	-.0011961	.0278742	-0.04	0.966	-.056029	.0536369
radchw2	.0572715	.0247949	2.31	0.022	.008496	.1060469
kzchorn	.062399	.0422271	1.48	0.140	-.0206683	.1454663
radhlw2	.0009003	.0706861	0.01	0.990	-.1381504	.139951
_cons	-.113505	5.905524	-0.02	0.985	-11.7306	11.50359
WHPsleep						
crhtw2	8.866596	4.561791	1.94	0.053	-.1071618	17.84035
avgcumdosew2	.782658	.4993256	1.57	0.118	-.1995937	1.76491
icdxcnt	1.935277	.7934641	2.44	0.015	.3744088	3.496145
airw2	-.0103667	.0419334	-0.25	0.805	-.0928562	.0721228
radchw2	-.0241642	.0373009	-0.65	0.518	-.0975409	.0492124
kzchorn	.0909609	.0635254	1.43	0.153	-.0340036	.2159254
radhlw2	-.0327927	.1063386	-0.31	0.758	-.2419774	.176392
_cons	10.66227	8.884136	1.20	0.231	-6.814218	28.13876
WHPsociso						
crhtw2	10.497	2.908572	3.61	0.000	4.775384	16.21862
avgcumdosew2	.2591762	.3183672	0.81	0.416	-.367102	.8854544
icdxcnt	1.136845	.5059083	2.25	0.025	.1416439	2.132046
airw2	-.0121671	.0267365	-0.46	0.649	-.0647619	.0404277
radchw2	.0041505	.0237828	0.17	0.862	-.0426341	.050935
kzchorn	-.0953605	.0405035	-2.35	0.019	-.1750372	-.0156839
radhlw2	-.190258	.0678009	-2.81	0.005	-.323633	-.056883
_cons	21.23094	5.664476	3.75	0.000	10.08803	32.37385
WHPpa						

crhtw2	4.186096	2.701867	1.55	0.122	-1.1289	9.501091
avgcumdosew2	-.1323914	.2957416	-0.45	0.655	-.7141615	.4493787
icdxcnt	1.70806	.4699546	3.63	0.000	.7835858	2.632535
airw2	.0217438	.0248364	0.88	0.382	-.0271132	.0706009
radchw2	.0598361	.0220926	2.71	0.007	.0163764	.1032957
kzchorn	.0116141	.037625	0.31	0.758	-.0624002	.0856283
radhlw2	-.0205314	.0629825	-0.33	0.745	-.1444277	.103365
_cons	3.491952	5.261915	0.66	0.507	-6.85906	13.84296
WHPel						
crhtw2	4.621881	5.519162	0.84	0.403	-6.235177	15.47894
avgcumdosew2	1.204837	.6041178	1.99	0.047	.0164422	2.393231
icdxcnt	4.937275	.9599864	5.14	0.000	3.048831	6.825719
airw2	-.0751886	.0507338	-1.48	0.139	-.1749899	.0246128
radchw2	.0370536	.0451291	0.82	0.412	-.0517224	.1258297
kzchorn	-.060569	.0768574	-0.79	0.431	-.2117595	.0906215
radhlw2	.1105936	.1286556	0.86	0.391	-.1424922	.3636794
_cons	11.36327	10.74863	1.06	0.291	-9.780963	32.50751

Gender=2 and Wave = 2 :

Equation	Obs	Parms	RMSE	"R-sq"	F	P
WHPpain	363	8	21.18933	0.1167	6.699604	0.0000
WHPsleep	363	8	29.28772	0.1192	6.861421	0.0000
WHPsociso	363	8	18.13909	0.0833	4.605878	0.0001
WHPpa	363	8	20.24311	0.1250	7.245071	0.0000
WHPel	363	8	33.3082	0.0829	4.584011	0.0001

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
WHPpain						
crhtw2	10.85203	4.537706	2.39	0.017	1.927863	19.77619
avgcumdosew2	1.620939	.8236584	1.97	0.050	.0010751	3.240802
icdxcnt	1.721689	.498161	3.46	0.001	.7419714	2.701407
airw2	-.0634661	.0315574	-2.01	0.045	-.1255289	-.0014032
radchw2	-.0462435	.0370295	-1.25	0.213	-.1190684	.0265813
kzchorn	-.0586078	.0547569	-1.07	0.285	-.1662965	.0490808
radhlw2	-.0856072	.1046901	-0.82	0.414	-.2914979	.1202835
_cons	24.04079	8.782156	2.74	0.007	6.769193	41.31238
WHPsleep						
crhtw2	10.29071	6.271981	1.64	0.102	-2.044202	22.62562
avgcumdosew2	2.274574	1.138454	2.00	0.046	.0356122	4.513536
icdxcnt	1.965661	.6885541	2.85	0.005	.611503	3.319819
airw2	.0042129	.0436183	0.10	0.923	-.0815699	.0899957
radchw2	-.1276174	.0511819	-2.49	0.013	-.2282753	-.0269595

kzchorn	.0015148	.0756845	0.02	0.984	-.1473316	.1503612
radhlw2	-.0063621	.1447018	-0.04	0.965	-.2909426	.2782183
_cons	24.31236	12.13863	2.00	0.046	.4397005	48.18502
WHPsociso						
crhtw2	1.995938	3.884497	0.51	0.608	-5.643581	9.635456
avgcumdosew2	1.379835	.7050915	1.96	0.051	-.006847	2.766516
icdxcnt	.4660877	.42645	1.09	0.275	-.3725982	1.304774
airw2	-.0461255	.0270146	-1.71	0.089	-.0992543	.0070034
radchw2	-.032017	.0316991	-1.01	0.313	-.0943586	.0303246
kzchorn	.0384646	.0468746	0.82	0.412	-.0537221	.1306514
radhlw2	.0880077	.0896198	0.98	0.327	-.0882447	.2642601
_cons	2.608648	7.517952	0.35	0.729	-12.17667	17.39397
WHPpa						
crhtw2	8.065983	4.335073	1.86	0.064	-.4596695	16.59164
avgcumdosew2	1.341963	.7868775	1.71	0.089	-.205565	2.88949
icdxcnt	1.692232	.4759154	3.56	0.000	.7562639	2.6282
airw2	.0213536	.0301481	0.71	0.479	-.0379379	.080645
radchw2	.007865	.035376	0.22	0.824	-.0617078	.0774378
kzchorn	-.0413075	.0523117	-0.79	0.430	-.1441872	.0615723
radhlw2	-.0407816	.1000151	-0.41	0.684	-.2374782	.1559149
_cons	14.91481	8.389985	1.78	0.076	-1.585515	31.41513
WHPel						
crhtw2	10.67419	7.13297	1.50	0.135	-3.354002	24.70238
avgcumdosew2	1.800038	1.294736	1.39	0.165	-.7462785	4.346355
icdxcnt	2.038479	.7830757	2.60	0.010	.4984284	3.57853
airw2	-.0260386	.049606	-0.52	0.600	-.1235973	.0715201
radchw2	-.0687303	.058208	-1.18	0.238	-.183206	.0457455
kzchorn	.0196849	.0860742	0.23	0.819	-.1495945	.1889643
radhlw2	-.042099	.1645658	-0.26	0.798	-.3657454	.2815473
_cons	28.15414	13.80496	2.04	0.042	1.004352	55.30393

Gender=1 and Wave = 3 :

Equation	Obs	Parms	RMSE	"R-sq"	F	P
WHPpain	339	8	14.82923	0.2058	12.24946	0.0000
WHPsleep	339	8	22.66919	0.1847	10.71376	0.0000
WHPsociso	339	8	14.49486	0.0689	3.499827	0.0012
WHPpa	339	8	13.37827	0.1735	9.927034	0.0000
WHPel	339	8	27.70993	0.1665	9.448599	0.0000

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
WHPpain						
crhtw3	.5193063	3.335794	0.16	0.876	-6.042724	7.081336
avgcumdosew3	.4715194	.3060791	1.54	0.124	-.1305862	1.073625
icdxcnt	1.555413	.5229285	2.97	0.003	.5267302	2.584095
airw3	.0034836	.0251595	0.14	0.890	-.0460091	.0529762
radchw3	.075716	.0245807	3.08	0.002	.0273619	.12407
kzchorn	.0563176	.0414275	1.36	0.175	-.0251768	.137812
radhlw3	.103193	.0783968	1.32	0.189	-.0510258	.2574118
_cons	-6.009187	6.249336	-0.96	0.337	-18.30261	6.284237
WHPsleep						
crhtw3	8.858763	5.099369	1.74	0.083	-1.172496	18.89002
avgcumdosew3	.7010885	.4678977	1.50	0.135	-.2193396	1.621517
icdxcnt	1.798155	.7993915	2.25	0.025	.2256264	3.370683
airw3	.0242509	.0384608	0.63	0.529	-.0514077	.0999094
radchw3	-.0448926	.037576	-1.19	0.233	-.1188106	.0290253
kzchorn	.0895021	.0633295	1.41	0.159	-.035077	.2140812
radhlw3	-.041129	.1198438	-0.34	0.732	-.2768805	.1946225
_cons	11.1827	9.55325	1.17	0.243	-7.610043	29.97544
WHPsociso						
crhtw3	10.46634	3.260577	3.21	0.001	4.052275	16.88041
avgcumdosew3	.1245189	.2991775	0.42	0.678	-.4640102	.713048
icdxcnt	1.155572	.5111373	2.26	0.024	.1500849	2.161059
airw3	-.0195397	.0245922	-0.79	0.427	-.0679164	.028837
radchw3	.0117243	.0240264	0.49	0.626	-.0355394	.0589881
kzchorn	-.0858309	.0404934	-2.12	0.035	-.1654878	-.0061741
radhlw3	-.1887499	.0766291	-2.46	0.014	-.3394913	-.0380086
_cons	20.70403	6.108424	3.39	0.001	8.6878	32.72025
WHPpa						
crhtw3	.8871219	3.009404	0.29	0.768	-5.032848	6.807092
avgcumdosew3	-.1022279	.2761309	-0.37	0.711	-.6454206	.4409648
icdxcnt	1.730075	.4717626	3.67	0.000	.802044	2.658106
airw3	.0000149	.0226978	0.00	0.999	-.0446352	.0446649
radchw3	.0639089	.0221756	2.88	0.004	.0202861	.1075318
kzchorn	.0170581	.037374	0.46	0.648	-.0564625	.0905787
radhlw3	.0773097	.0707261	1.09	0.275	-.0618196	.2164389
_cons	-1.675324	5.637871	-0.30	0.767	-12.7659	9.415252
WHPel						
crhtw3	.4479058	6.233269	0.07	0.943	-11.81391	12.70972
avgcumdosew3	1.239326	.5719398	2.17	0.031	.1142312	2.364422
icdxcnt	4.98101	.9771448	5.10	0.000	3.058813	6.903207
airw3	-.0193489	.047013	-0.41	0.681	-.1118309	.0731331
radchw3	.0080721	.0459315	0.18	0.861	-.0822823	.0984265

kzchorn	-.0303274	.0774115	-0.39	0.695	-.182608	.1219532
radhlw3	.168264	.1464923	1.15	0.252	-.1199094	.4564374
_cons	5.587405	11.67752	0.48	0.633	-17.3841	28.55891

Gender=2 and Wave = 3 :

Equation	Obs	Parms	RMSE	"R-sq"	F	P
WHPpain	363	8	21.08578	0.1253	7.264904	0.0000
WHPsleep	363	8	29.11764	0.1294	7.535969	0.0000
WHPsociso	363	8	18.02837	0.0944	5.287451	0.0000
WHPpa	363	8	20.2223	0.1268	7.36442	0.0000
WHPel	363	8	33.09063	0.0948	5.313574	0.0000

	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
WHPpain						
crhtw3	12.9821	5.007279	2.59	0.010	3.13444	22.82976
avgcumdosew3	1.116021	.6425279	1.74	0.083	-.1476182	2.379661
icdxcnt	1.748298	.4955649	3.53	0.000	.7736856	2.72291
airw3	-.0401479	.0315655	-1.27	0.204	-.1022267	.0219309
radchw3	-.0327896	.0365759	-0.90	0.371	-.1047223	.039143
kzchorn	-.1004327	.0550929	-1.82	0.069	-.2087821	.0079168
radhlw3	-.1140996	.1156521	-0.99	0.325	-.3415489	.1133498
_cons	27.40448	9.462401	2.90	0.004	8.795075	46.01389
WHPsleep						
crhtw3	4.705181	6.914622	0.68	0.497	-8.893592	18.30395
avgcumdosew3	1.564963	.8872759	1.76	0.079	-.1800145	3.309941
icdxcnt	2.091797	.6843326	3.06	0.002	.7459411	3.437652
airw3	.0069634	.0435892	0.16	0.873	-.0787621	.0926889
radchw3	-.1071261	.0505082	-2.12	0.035	-.2064589	-.0077932
kzchorn	-.0055193	.0760785	-0.07	0.942	-.1551406	.1441019
radhlw3	.1587732	.1597056	0.99	0.321	-.1553149	.4728612
_cons	13.95462	13.06676	1.07	0.286	-11.74338	39.65261
WHPsociso						
crhtw3	2.213333	4.281232	0.52	0.605	-6.206432	10.6331
avgcumdosew3	.9311593	.5493624	1.69	0.091	-.1492546	2.011573
icdxcnt	.538636	.4237088	1.27	0.204	-.294659	1.371931
airw3	-.0674817	.0269885	-2.50	0.013	-.1205592	-.0144043
radchw3	-.0108668	.0312724	-0.35	0.728	-.0723693	.0506358
kzchorn	.0185256	.0471045	0.39	0.694	-.0741133	.1111646
radhlw3	.0959043	.0988827	0.97	0.333	-.0985652	.2903739
_cons	3.407024	8.090368	0.42	0.674	-12.50405	19.3181
WHPpa						

crhtw3	3.466295	4.802227	0.72	0.471	-5.978096	12.91069
avgcumdosew3	.9733634	.6162159	1.58	0.115	-.2385292	2.185256
icdxcnt	1.786185	.4752712	3.76	0.000	.8514838	2.720886
airw3	.0072155	.0302728	0.24	0.812	-.0523212	.0667521
radchw3	.0265496	.0350781	0.76	0.450	-.0424374	.0955366
kzchorn	-.0324942	.0528368	-0.61	0.539	-.1364066	.0714183
radhlw3	.0744324	.110916	0.67	0.503	-.1437027	.2925676
_cons	7.070732	9.074908	0.78	0.436	-10.77661	24.91807
WHPel						
crhtw3	9.920429	7.858095	1.26	0.208	-5.533842	25.3747
avgcumdosew3	.9697339	1.008341	0.96	0.337	-1.013339	2.952807
icdxcnt	2.095796	.7777071	2.69	0.007	.5663036	3.625288
airw3	-.0341511	.0495368	-0.69	0.491	-.1315735	.0632713
radchw3	-.0764758	.0573998	-1.33	0.184	-.1893622	.0364106
kzchorn	-.0089512	.0864591	-0.10	0.918	-.1789877	.1610853
radhlw3	.0297952	.1814968	0.16	0.870	-.3271489	.3867392
_cons	27.39874	14.84967	1.85	0.066	-1.805639	56.60313

```
12 .
13 .
14 . title "Zero order pain relationships for men and women in different waves"

*******************************************************************************
> *
*******************************************************************************
> *
*****                                                                      ****
> *
*****                                                                      ****
> *
***** Zero order pain relationships for men and women in different waves  ****
> *
*****                                                                      ****
> *
*****                                                                      ****
> *
*****                                          13 Jul 2012    12:41:29  ****
> *
*******************************************************************************
> *
*******************************************************************************
> *
```

```
15 . forvalues k=1/2 {
     2. regress WHPpain crhtw1 crhtw2 crhtw3 if gender==`k'
     3. // zero order relationships in wave 1 and 3 for men
16 . // zero order relationship in wave three for women
17 . }
```

Source	SS	df	MS
Model	15434.8724	3	5144.95746
Residual	76210.199	335	227.493131
Total	91645.0713	338	271.139264

Number of obs =	339
F(3, 335) =	22.62
Prob > F =	0.0000
R-squared =	0.1684
Adj R-squared =	0.1610
Root MSE =	15.083

WHPpain	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
crhtw1	-3.425163	1.572465	-2.18	0.030	-6.518312	-.3320138
crhtw2	1.273679	3.738393	0.34	0.734	-6.080003	8.627362
crhtw3	8.362157	3.22885	2.59	0.010	2.010781	14.71353
_cons	11.4981	.8358178	13.76	0.000	9.853991	13.14222

Source	SS	df	MS
Model	13415.6503	3	4471.88345
Residual	166705.9	358	465.65894
Total	180121.551	361	498.951664

Number of obs =	362
F(3, 358) =	9.60
Prob > F =	0.0000
R-squared =	0.0745
Adj R-squared =	0.0667
Root MSE =	21.579

WHPpain	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
crhtw1	-2.44253	1.708858	-1.43	0.154	-5.803192	.9181314
crhtw2	-1.162584	4.560118	-0.25	0.799	-10.13057	7.805402
crhtw3	8.99153	3.993464	2.25	0.025	1.137933	16.84513
_cons	17.03202	1.156567	14.73	0.000	14.7575	19.30654

```
18 .
19 .
20 . title "perception of risk => the Male Sleep model "


   ******************************************************************************
   > *
   ******************************************************************************
   > *
   *****                                                                    ****
   > *
   *****                                                                    ****
   > *
   *****            perception of risk => the Male Sleep model              ****
   > *
   *****                                                                    ****
   > *
   *****                                                                    ****
   > *
   *****                                          13 Jul 2012    12:41:29  ****
   > *
   ******************************************************************************
   > *
   ******************************************************************************
   > *



21 .
22 .
23 . *--------------------------------  Male Sleep Model
24 . /* candiate illnesses  for male sleep model
   >
   > foreach i in 7 {
   > foreach j in 1 5 6 {
   > foreach k in 3 {
   > foreach m in 2 {
   > foreach n in 4 {
   > regress whpsleep icdx`i'nr1-icdx`i'nr28 if gender==1
   > regress whpsleep icdx`j'nr1-icdx`j'nr18 if gender==1
   > regress whpsleep icdx`k'nr1-icdx`k'nr11 if gender==1
   > regress whpsleep icdx`m'nr1-icdx`m'nr8 if gender==1
   > regress whpsleep icdx`n'nr1-icdx`n'nr20 if gender==1
   > }
   > }
   > }
   > }
   > }
   >
```

```
   > */
25 .
26 . /*
   >
   > EQ(62) Modelling WHPsleep by OLS-CS
   >        The dataset is: /Users/robertyaffee/Documents/data/research/chwk/phas
   > e3/
   >        data/ox/workingdatasets/MARS/guys.dta
   >        The estimation sample is: 1 - 340
   >        Dropped 4 observation(s) with missing values from the sample
   >
   >                   Coefficient  Std.Error      HACSE  t-HACSE  t-prob Part.R^
   > 2
   > PTSDw1               0.105433    0.03256    0.04230     2.49  0.0132   0.019
   > 1
   > emplw22              -5.98474      2.470      2.541    -2.36  0.0191   0.017
   > 1
   > emplw24               49.4794      19.42      4.842     10.2  0.0000   0.246
   > 6
   > inc1w2               -25.4472      5.061      4.732    -5.38  0.0000   0.083
   > 1
   > inc2w2               -23.5018      3.534      3.399    -6.91  0.0000   0.130
   > 3
   > inc3w2               -21.0581      3.592      3.619    -5.82  0.0000   0.095
   > 9
   > inc4w2               -19.9443      6.400      6.626    -3.01  0.0028   0.027
   > 6
   > shrelaw1            0.0772105    0.03973    0.04003     1.93  0.0546   0.011
   > 5
   > shrelaw2           -0.0973671    0.04382    0.04555    -2.14  0.0333   0.014
   > 1
   > dafter              0.0590987    0.02348   0.008785     6.73  0.0000   0.124
   > 2
   > dauthw1            -0.0750523    0.03842    0.03704    -2.03  0.0436   0.012
   > 7
   > dauthw3             0.0758573    0.03144    0.02970     2.55  0.0111   0.020
   > 0
   > BSIposymp            0.491856    0.04520    0.04746     10.4  0.0000   0.251
   > 9
   > avgcumdosew1  U       1.43906     0.6365     0.4173     3.45  0.0006   0.035
   > 9
   > radhw1       U   -0.00976929    0.05730    0.06965   -0.140  0.8885   0.0001
   > radhw2       U     0.0495865     0.1175     0.1131    0.438  0.6613   0.0006
   > radhw3       U   0.000243982     0.1004    0.07006  0.00348  0.9972   0.0000
   >
   > sigma                 18.9984  RSS                 115139.816
   > log-likelihood       -1457.34
   > no. of observations       336  no. of parameters          17
   > mean(WHPsleep)        17.5028  se(WHPsleep)          24.9014
```

```
   > When the log-likelihood constant is NOT included:
   > AIC                   5.93798  SC                    6.13111
   > HQ                    6.01497  FPE                   379.202
   > When the log-likelihood constant is included:
   > AIC                   8.77586  SC                    8.96899
   > HQ                    8.85284  FPE                   6476.56
   >
   > Normality test:   Chi^2(2)  =   91.495 [0.0000]**
   > Hetero test:      F(27,307) =   1.7727 [0.0119]*
   > Hetero-X test:    F(82,252) =   1.0160 [0.4528]
   > RESET23 test:     F(2,317)  =   3.4531 [0.0328]*
   >
   > */
27 .
28 . *--------Male Sleep crhtw models -------------------------------------------
   > -
29 . cap drop rmslp1

30 . cap drop H8MaleSLpred

31 . cap drop h8MSLsepred

32 . cap drop MSLrsires

33 . cap drop upbSLm

34 . cap drop lpbSLm

35 .
36 .
37 . des icdx1nr8 icdx2nr8 icdx3nr7 icdx4nr7 icdx4nr12

                 storage  display     value
   variable name   type   format      label      variable label
   ---------------------------------------------------------------------------
   icdx1nr8        double %8.0g                  icdx1nr==466 ac
                                                   bronchitis/brnchial
   icdx2nr8        double %8.0g                  icdx2nr==732 osteochondropathies
   icdx3nr7        double %8.0g                  icdx3nr==434.91 crbrl art ocl
                                                   nos w infarc
   icdx4nr7        double %8.0g                  icdx4nr==acute myocardial
                                                   infarct
   icdx4nr12       double %8.0g                  icdx4nr==gastritis/duodenitis
```

```
38 .
39 . // Full male sleep regression model
40 . regress WHPsleep age emplw24 inc1w2-inc4w2 ///
   >   shrelaw1 shrelaw2 dafter  ///
   >   BSIposymp WHPpain illw1 illw3 icdxcnt ///
   >   avgcumdosew1 crhtw1-crhtw3 ///
   >   icdx1nr8 icdx2nr8 icdx3nr7 icdx4nr7 icdx4nr12  ///
   >   if gender==1, vce(cluster id)

   Linear regression                                      Number of obs =     337
                                                          F( 20,   336) =       .
                                                          Prob > F      =       .
                                                          R-squared     =  0.4938
                                                          Root MSE      =  18.343

                                       (Std. Err. adjusted for 337 clusters in id)
```

WHPsleep	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
age	.0641877	.1091018	0.59	0.557	-.1504208	.2787963
emplw24	6.851287	11.8757	0.58	0.564	-16.5088	30.21137
inc1w2	-13.86611	6.250046	-2.22	0.027	-26.16026	-1.57196
inc2w2	-12.76203	5.392418	-2.37	0.019	-23.36918	-2.154877
inc3w2	-12.47387	5.389799	-2.31	0.021	-23.07587	-1.871866
inc4w2	-12.94876	6.680462	-1.94	0.053	-26.08956	.1920365
shrelaw1	.1014936	.0418903	2.42	0.016	.0190933	.1838939
shrelaw2	-.0929358	.0455514	-2.04	0.042	-.1825376	-.0033339
dafter	.0483449	.0100404	4.82	0.000	.0285949	.0680949
BSIposymp	.482837	.069221	6.98	0.000	.346676	.6189981
WHPpain	.2951184	.0988011	2.99	0.003	.1007718	.489465
illw1	6.565633	2.837541	2.31	0.021	.98405	12.14722
illw3	-4.196016	1.704056	-2.46	0.014	-7.547978	-.8440535
icdxcnt	.5958248	.9136271	0.65	0.515	-1.201325	2.392974
avgcumdosew1	1.243387	.3978586	3.13	0.002	.4607799	2.025995
crhtw1	.6335098	2.471172	0.26	0.798	-4.227407	5.494427
crhtw2	.3798887	4.392074	0.09	0.931	-8.259537	9.019314
crhtw3	.6355449	2.968463	0.21	0.831	-5.203568	6.474658
icdx1nr8	11.7858	7.732264	1.52	0.128	-3.423943	26.99555
icdx2nr8	2.232118	6.240594	0.36	0.721	-10.04344	14.50768
icdx3nr7	18.45049	8.659509	2.13	0.034	1.416808	35.48417
icdx4nr7	40.61513	6.346595	6.40	0.000	28.13106	53.09919
icdx4nr12	35.71014	5.858498	6.10	0.000	24.18618	47.23409
_cons	-14.79354	8.256445	-1.79	0.074	-31.03438	1.447294

```
41 .
42 .
43 . // Trimmed male sleep regression model
44 . cap drop H8MaleSLpred

45 . cap drop h8MSLsepred

46 . cap drop MSLrsires

47 . cap drop upbSLm

48 . cap drop lpbSLm

49 . cap drop rmslp1

50 .
51 . regress WHPsleep age emplw24 inc1w2-inc4w2 ///
   >   shrelaw1 shrelaw2 dafter  ///
   >   BSIposymp WHPpain illw1 illw3  ///
   >   avgcumdosew1 crhtw1-crhtw3 ///
   >    icdx3nr7 icdx4nr7 icdx4nr12  ///
   >   if gender==1, vce(cluster id)

   Linear regression                                      Number of obs =     337
                                                          F( 17,   336) =       .
                                                          Prob > F      =       .
                                                          R-squared     =  0.4870
                                                          Root MSE      =  18.377

                                    (Std. Err. adjusted for 337 clusters in id)
```

WHPsleep	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
age	.0685693	.1034704	0.66	0.508	-.134962	.2721006
emplw24	18.32908	8.414051	2.18	0.030	1.778224	34.87993
inc1w2	-13.68522	6.176679	-2.22	0.027	-25.83505	-1.535386
inc2w2	-13.09289	5.403288	-2.42	0.016	-23.72143	-2.464356
inc3w2	-12.67035	5.406765	-2.34	0.020	-23.30573	-2.034979
inc4w2	-12.77384	6.679958	-1.91	0.057	-25.91364	.365971
shrelaw1	.1092769	.0419831	2.60	0.010	.0266941	.1918598
shrelaw2	-.0955916	.0449321	-2.13	0.034	-.1839752	-.007208
dafter	.05152	.0070831	7.27	0.000	.0375873	.0654527
BSIposymp	.4932165	.0723817	6.81	0.000	.3508381	.635595
WHPpain	.2811363	.0987587	2.85	0.005	.086873	.4753996
illw1	7.225872	2.783662	2.60	0.010	1.750271	12.70147
illw3	-3.669956	1.542068	-2.38	0.018	-6.703281	-.6366316
avgcumdosew1	1.277645	.3456958	3.70	0.000	.597644	1.957646
crhtw1	1.05903	2.451491	0.43	0.666	-3.763175	5.881234

crhtw2	-.5059819	4.337534	-0.12	0.907	-9.038126	8.026162
crhtw3	1.319219	2.981739	0.44	0.658	-4.546009	7.184448
icdx3nr7	18.04353	8.510413	2.12	0.035	1.303132	34.78394
icdx4nr7	41.93536	5.890901	7.12	0.000	30.34766	53.52305
icdx4nr12	36.07907	5.513198	6.54	0.000	25.23433	46.9238
_cons	-14.2854	8.200349	-1.74	0.082	-30.4159	1.845086

```
52 .
53 . *-+ no male sleep relationships between health threat sleep
54 .
55 . // prep for residual and prediction interval analysis
56 .     predict H8MaleSLpred if gender==2, xb
   (348 missing values generated)

57 .      predict h8MSLsepred if gender==2, stdp
   (348 missing values generated)

58 .      predict MSLrsires if gender==2, residual
   (348 missing values generated)

59 .      gen upbSLm = H8MaleSLpred + 1.96*h8MSLsepred
   (348 missing values generated)

60 .      gen lpbSLm = H8MaleSLpred - 1.96*h8MSLsepred
   (348 missing values generated)

61 .  // residual diagnostics
62 .
63 . rdiagrbst rmslp1
   (option xb assumed; fitted values)
   (11 missing values generated)
   yvar =  WHPsleep
   age emplw24 inc1w2 inc2w2 inc3w2 inc4w2 shrelaw1 shrelaw2 dafter BSIposymp WHP
   > pain illw1 illw3 avgcumdosew1 crhtw1 crhtw2 crhtw3 icdx3nr7 icdx4nr7 icdx4nr
   > 12 _cons
   162
   156
   xvar = ,age emplw24 inc1w2 inc2w2 inc3w2 inc4w2 shrelaw1 shrelaw2 dafter BSIpo
   > symp WHPpain illw1 illw3 avgcumdosew1 crhtw1 crhtw2 crhtw3 icdx3nr7 icdx4nr7
   >  icdx4nr12
```

	Problems
POuts	**0**
NOuts	**0**
Badouts	**0**
Collin	**0**
SW	**0**
KS	**0**
Spec	**0**
Strbrk	**0**
Coltot	**0**
Pcttot	**0**

Outlier dignostics

Fitted values

	Percentiles	Smallest		
1%	**-3.375236**	**-9.71623**		
5%	**-1.434807**	**-6.597977**		
10%	**1.560467**	**-5.321205**	Obs	**691**
25%	**7.232412**	**-4.890507**	Sum of Wgt.	**691**
50%	**18.11478**		Mean	**22.53079**
		Largest	Std. Dev.	**20.35484**
75%	**33.27406**	**94.9482**		
90%	**50.52992**	**102.6599**	Variance	**414.3194**
95%	**63.19973**	**108.7799**	Skewness	**1.207259**
99%	**85.01624**	**114.9269**	Kurtosis	**4.556202**

(11 missing values generated)
(175 real changes made)
(175 real changes made)
(175 real changes made)
(175 real changes made)
(176 real changes made)
(176 real changes made)
(176 real changes made)
(176 real changes made)

Variable	Obs	Mean	Std. Dev.	Min	Max
__000001	**702**	**.2492877**	**.4329092**	**0**	**1**

Variable	Obs	Mean	Std. Dev.	Min	Max
__000003	**702**	**.2492877**	**.4329092**	**0**	**1**

Variable	Obs	Mean	Std. Dev.	Min	Max
__000005	702	.2507123	.4337322	0	1

Variable	Obs	Mean	Std. Dev.	Min	Max
__000007	702	.2507123	.4337322	0	1

```
.18741034
.1881236
Split sample analysis
There are 4 subsamples of equal sample size.

Variance 1 =  .18741034
Variance 2 =  .18741034
Variance 3 =  .1881236
Variance 4 =  .1881236

Minimum variance =  .18741034

Maximum variance =  .1881236

Computing Box's F test as indication of stuctural break:

for segment 1  Box's F =  1
for segment 2  Box's F =  1
for segment 3  Box's F =  1.0038059
for segment 4  Box's F =  1.0038059

There appears to be no structural break.
```

obs:	rmslp1std
615.	-1.584244
16.	-1.431049
217.	-1.368323
460.	-1.347164
646.	-1.344078

288.	3.268812
344.	3.55775
11.	3.936613
335.	4.237278
178.	4.539272

There are 4 positive outliers

	id	rmslp1~d
11.	152	3.936613
178.	126	4.539272
335.	133	4.237278
344.	452	3.55775

There are 6 negative outliers:

	id	rmslp1std
16.	122	-1.431049
217.	110	-1.368323
460.	598	-1.347164
570.	506	-1.308082
615.	8	-1.584244
646.	6	-1.344078

```
(702 real changes made, 702 to missing)
    4
    6
(15 real changes made)
   21

                              outlier
-------------------------------------------------------------
      Percentiles      Smallest
 1%            0              0
 5%            0              0
10%            0              0       Obs                 702
25%            0              0       Sum of Wgt.         702

50%            0                      Mean           .0213675
                        Largest       Std. Dev.      .1447093
75%            0              1
90%            0              1       Variance       .0209408
95%            0              1       Skewness       6.619806
99%            1              1       Kurtosis       44.82183
(351 real changes made)
```

__00000N	Freq.	Percent	Cum.
0	351	50.00	50.00
1	351	50.00	100.00
Total	702	100.00	

Stem-and-leaf plot for rmslp1std

rmslp1std rounded to nearest multiple of **.01**
plot in units of **.01**

```
 -15* | 8
 -14* | 3
 -13* | 7541
 -12* | 765544333222222111100000
 -11* | 9988765443331111100000
 -10* | 999987777766433332222221110000000
  -9* | 99999887777776666555544444333333222222211000
  -8* | 9998777776666444443322211111110
  -7* | 988887776666555544443322222211111111110000000
  -6* | 9988776666665554433333322100000
  -5* | 99999977766555533321100
  -4* | 999988888777766666655444433333222111000000
  -3* | 9987777766655554433332211111 0000
  -2* | 998876655554432211 1000
  -1* | 9988888877777665444333211110000
  -0* | 99877665444322211
   0* | 1123344455556666666777788999999
   1* | 00000111123333335556777778889 9
   2* | 0000001133345666667789 9
   3* | 00112224444556777799
   4* | 01123333566
   5* | 1122345557788899
   6* | 022333444556677778999
   7* | 013344566888
   8* | 03344445567777889
   9* | 0457889
  10* | 014455778
  11* | 22334579
  12* | 0245566777
  13* | 12233568
  14* | 011266
  15* | 33368
  16* | 02567
  17* | 0224688
  18* | 01357788
  19* | 034
  20* | 045
```

```
  21* | 2556
  22* | 4467
  23* | 289
  24* | 57
  25* | 056
  26* | 28
  27* | 111
  28* | 13
  29* | 2
  30* | 37
  31* | 6
  32* | 7
  33* |
  34* |
  35* | 6
  36* |
  37* |
  38* |
  39* | 4
  40* |
  41* |
  42* | 4
  43* |
  44* |
  45* | 4
```

Computing the leverage h

```
                          rmslp1std
-------------------------------------------------------------
      Percentiles      Smallest
 1%    -1.272721      -1.584244
 5%    -1.177391      -1.431049
10%    -1.030238      -1.368323       Obs                 691
25%    -.7515843      -1.347164       Sum of Wgt.         691

50%    -.2169512                      Mean           5.01e-10
                        Largest       Std. Dev.             1
75%     .5277992        3.55775
90%     1.375552       3.936613       Variance              1
95%     1.997999       4.237278       Skewness       1.207259
99%     3.069808       4.539272       Kurtosis       4.556202

standard error of snewness=  .09231881
(702 real changes made, 702 to missing)

t test for skewness =  .
badout=  1
```

Positive outliers are :

	id
11.	152
178.	126
335.	133
344.	452

4

Negative outliers are:

	id
16.	122
217.	110
460.	598
570.	506
615.	8
646.	6

6

---

multicollinearity tests:

Variable	VIF	1/VIF
crhtw2	18.48	0.054118
crhtw3	13.89	0.072003
inc2w2	5.62	0.177934
inc3w2	5.29	0.188912
crhtw1	4.17	0.239696
inc1w2	2.28	0.438400
shrelaw2	2.23	0.449395
shrelaw1	2.06	0.484809
inc4w2	1.76	0.569178
BSIposymp	1.69	0.591963
illw3	1.68	0.596771
WHPpain	1.63	0.612886
age	1.39	0.719163
illw1	1.20	0.830233
emplw24	1.17	0.855084
icdx3nr7	1.10	0.908253
dafter	1.09	0.918950
icdx4nr12	1.08	0.924193

icdx4nr7	1.07	0.931910
avgcumdosew1	1.06	0.941070
Mean VIF	3.50	

Condition number using scaled variables = 21.50

Condition Indexes and Variance-Decomposition Proportions

condition index	_cons	age	emplw24	inc1w2	inc2w2
> inc3w2	inc4w2	shrelaw1	shrelaw2	dafter	
1 1.00	0.00	0.00	0.00	0.00	0.00
> 0.00	0.00	0.00	0.00	0.00	
2 1.41	0.00	0.00	0.00	0.00	0.00
> 0.00	0.00	0.00	0.00	0.00	
3 2.06	0.00	0.00	0.04	0.01	0.00
> 0.01	0.02	0.01	0.01	0.11	
4 2.19	0.00	0.00	0.04	0.13	0.00
> 0.00	0.00	0.00	0.00	0.02	
5 2.32	0.00	0.00	0.39	0.00	0.01
> 0.00	0.02	0.00	0.00	0.02	
6 2.36	0.00	0.00	0.11	0.00	0.01
> 0.00	0.02	0.00	0.00	0.21	
7 2.37	0.00	0.00	0.00	0.00	0.00
> 0.03	0.29	0.00	0.00	0.00	
8 2.41	0.00	0.00	0.01	0.00	0.00
> 0.00	0.03	0.00	0.00	0.07	
9 2.53	0.00	0.00	0.02	0.02	0.01
> 0.00	0.07	0.00	0.00	0.02	
10 2.59	0.00	0.00	0.00	0.03	0.01
> 0.02	0.00	0.02	0.01	0.02	
11 2.73	0.00	0.00	0.00	0.11	0.00
> 0.00	0.01	0.02	0.01	0.16	
12 2.74	0.00	0.00	0.05	0.08	0.00
> 0.00	0.01	0.02	0.03	0.22	
13 2.84	0.00	0.00	0.09	0.00	0.00
> 0.01	0.03	0.02	0.03	0.03	
14 3.02	0.00	0.00	0.00	0.01	0.01
> 0.00	0.01	0.07	0.03	0.09	
15 4.01	0.00	0.00	0.21	0.00	0.00
> 0.01	0.00	0.01	0.00	0.00	
16 5.75	0.00	0.00	0.00	0.02	0.00
> 0.00	0.00	0.35	0.32	0.01	
17 5.91	0.00	0.00	0.00	0.00	0.00
> 0.00	0.00	0.46	0.53	0.00	
18 10.49	0.00	0.17	0.00	0.30	0.54
> 0.56	0.33	0.00	0.00	0.01	
19 11.55	0.00	0.38	0.01	0.00	0.00

```
>     0.00          0.00          0.01          0.00          0.00
20 13.69          0.00          0.00          0.00          0.00          0.00
>     0.00          0.00          0.00          0.00          0.01
21 21.50          0.99          0.44          0.02          0.28          0.40
>     0.35          0.13          0.01          0.01          0.00

condition
   index    BSIposymp      WHPpain        illw1        illw3 avgcumdosew1
>   crhtw1       crhtw2       crhtw3     icdx3nr7     icdx4nr7
1   1.00          0.00          0.01          0.00          0.01          0.00
>     0.00          0.00          0.00          0.00          0.00
2   1.41          0.00          0.00          0.00          0.00          0.00
>     0.02          0.01          0.01          0.01          0.00
3   2.06          0.00          0.02          0.08          0.03          0.01
>     0.01          0.00          0.00          0.05          0.00
4   2.19          0.00          0.00          0.02          0.00          0.01
>     0.00          0.00          0.00          0.00          0.00
5   2.32          0.00          0.01          0.05          0.01          0.09
>     0.00          0.00          0.00          0.03          0.02
6   2.36          0.00          0.00          0.01          0.02          0.05
>     0.00          0.00          0.00          0.06          0.22
7   2.37          0.00          0.00          0.00          0.00          0.04
>     0.00          0.00          0.00          0.06          0.00
8   2.41          0.00          0.00          0.01          0.00          0.06
>     0.00          0.00          0.00          0.00          0.60
9   2.53          0.00          0.01          0.14          0.01          0.08
>     0.00          0.00          0.00          0.35          0.02
10  2.59          0.00          0.02          0.01          0.01          0.40
>     0.00          0.00          0.00          0.10          0.00
11  2.73          0.00          0.00          0.02          0.04          0.00
>     0.01          0.00          0.00          0.14          0.00
12  2.74          0.00          0.02          0.02          0.03          0.21
>     0.00          0.00          0.00          0.05          0.03
13  2.84          0.00          0.03          0.47          0.01          0.00
>     0.00          0.00          0.00          0.08          0.03
14  3.02          0.00          0.00          0.04          0.23          0.00
>     0.03          0.00          0.00          0.04          0.03
15  4.01          0.00          0.79          0.00          0.21          0.00
>     0.00          0.00          0.00          0.00          0.00
16  5.75          0.00          0.00          0.02          0.17          0.00
>     0.45          0.01          0.05          0.00          0.00
17  5.91          0.00          0.02          0.00          0.17          0.04
>     0.28          0.01          0.04          0.02          0.00
18 10.49          0.15          0.03          0.03          0.03          0.00
>     0.00          0.00          0.01          0.00          0.04
19 11.55          0.68          0.02          0.01          0.00          0.00
>     0.00          0.00          0.01          0.01          0.01
20 13.69          0.01          0.01          0.01          0.00          0.00
>     0.19          0.96          0.87          0.00          0.00
```

```
21 21.50          0.15          0.01          0.04          0.02          0.00
>     0.01          0.00          0.00          0.00          0.01

condition
   index    icdx4nr12
>
1   1.00         0.00
2   1.41         0.00
3   2.06         0.03
4   2.19         0.30
5   2.32         0.01
6   2.36         0.00
7   2.37         0.01
8   2.41         0.00
9   2.53         0.05
10  2.59         0.07
11  2.73         0.36
12  2.74         0.03
13  2.84         0.07
14  3.02         0.00
15  4.01         0.03
16  5.75         0.00
17  5.91         0.00
18 10.49         0.00
19 11.55         0.02
20 13.69         0.00
21 21.50         0.00
```

Residual normality tests:

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
rmslp1std	691	0.90888	41.065	9.059	0.00000

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
rmslp1std	691	0.0000	0.0000	.	0.0000

```
Jarque-Bera normality test:  237.6 Chi(2)  2.6e-52
Jarque-Bera test for Ho: normality:
(file qnrmslp1std.gph saved)
(file bxrmslp1std.gph saved)
(bin=26, start=-1.5842435, width=.23551984)
(file histrmslp1std.gph saved)
(file kdrmslp1std.gph saved)
```

(file combi4.gph saved)

Specification error tests:

Ramsey RESET test using powers of the fitted values of WHPsleep
Ho: model has no omitted variables
F(3, 313) = **2.56**
Prob > F = **0.0548**

Assessment of fulfillment of cross-sectional statistical regression assumption
> s:
Caveat: This score is a heuristicc only as these scores are not strictly addit
> ive

Regression model assumption test result matrix

	Problems=1
Positive-outliers	**4**
Negative-outliers	**6**
Bad-outliers	**1**
collinearity	**1**
Shapiro-Wilk	**1**
Kolmogorov-Smirnov	**1**
Specification	**0**
StructuralBreak	**0**
TotalProbs	**3**
Percent-Invalid	**60**
Pct-Pseudo-Valid	**40**

Problem type total score = Bad-Outliers+collinearity + (SW + KS)/2 + Spec + st
> rbrk
Percent_Valid = 100 - (percent of violated assumptions)

Legend:

```
PosOutliers = positive outlier issue
NegOutliers = negative outlier issue
Badoutliers = Number of outliers with bad leverage
collinearity =  Collinearity problem when condition number > 20
SW = Significant Shapiro-Wilk test
KS = Significant Kolmogorov-Smirnov test
Spec = Significant Ramset23 reset test
strbrk = Existence of structural break in residual variance between 4 sample s
> egments
Column total = the total number of counted problems in the column vector
Percent invalid: Percent of 6 regression assumptions violated
Percent Pseudo-Validity =  percent of regression model assumptions not violate
> d
```

```
64 .
65 . // prediction interval
66 . scatter H8MaleSLpred MSLrsires || lowess H8MaleSLpred  MSLrsires  ///
>   || lowess upbSLm MSLrsires || lowess lpbSLm MSLrsires, ///
>   title(Prediction interval of Male Sleep model)   ///
>   ytitle(Predicted Male Sleep )

67 .
68 . // saving graph
69 . gr save MSLPredInt.gph, replace
(file MSLPredInt.gph saved)

70 . gr export MSLPredInt.eps, replace
(file MSLPredInt.eps written in EPS format)

71 . gr use  MSLPredInt.gph

72 .
73 .
74 . //  No signinficant main effect for risk sleep relationship so no moderation
75 . //  tests performed...
76 .
```

```
77 . title "tests for possible indirect effects for male sleep model"


   ******************************************************************************
   > *
   ******************************************************************************
   > *
   *****                                                                      ****
   > *
   *****                                                                      ****
   > *
   *****      tests for possible indirect effects for male sleep model       ****
   > *
   *****                                                                      ****
   > *
   *****                                                                      ****
   > *
   *****                                          13 Jul 2012    12:41:43  ****
   > *
   ******************************************************************************
   > *
   ******************************************************************************
   > *



78 . set more off

79 . foreach var in age emplw24 inc1w2 inc3w2 inc4w2 ///
   >   shrelaw1 shrelaw2 dafter  ///
   >   BSIposymp WHPpain illw1 illw3  ///
   >   avgcumdosew1 icdx3nr7 icdx4nr7 icdx4nr12  {
     2. sem (crhtw1-> `var')(`var'-> whpsleep) if gender==1, nocapslatent iterate
   > (50)
     3. sem (crhtw2-> `var')(`var'-> whpsleep) if gender==1, nocapslatent iterate
   > (50)
     4. sem (crhtw3-> `var')(`var'-> whpsleep) if gender==1, nocapslatent iterate
   > (50)
     5. }

   Endogenous variables

   Observed:  age whpsleep

   Exogenous variables

   Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -3321.2125
Iteration 1:   log likelihood = -3321.2125

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3321.2125

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  age <-     |
       crhtw1|   4.266795   .6763452     6.31   0.000     2.941183    5.59240
             |
       _cons |   49.78043    .635245    78.36   0.000     48.53537    51.0254
-------------+----------------------------------------------------------------
  whpsleep <-|
         age |   .5911349   .1054724     5.60   0.000     .3844128     .79785
             |
       _cons |  -11.72059   5.344283    -2.19   0.028    -22.19519   -1.24598
-------------+----------------------------------------------------------------
Variance     |
       e.age |   133.6667   10.26687                      114.9854     155.38
             |
   e.whpsleep|   563.2601   43.26375                      484.5389    654.770
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     19.43, Prob > chi2 = 0.0000

Endogenous variables

Observed:  age whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -3311.7159
Iteration 1:   log likelihood = -3311.7159

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3311.7159

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
------------------------------------------------------------------------------
Structural    |
  age <-      |
       crhtw2 |   4.951499   .6691348     7.40   0.000     3.640019    6.26297
        _cons |   50.08515   .6280741    79.74   0.000     48.85415    51.3161
  ------------------------------------------------------------------------------
  whpsleep <- |
          age |   .5911349   .1054724     5.60   0.000     .3844128     .79785
        _cons |  -11.72059   5.344283    -2.19   0.028    -22.19519   -1.24598
------------------------------------------------------------------------------
Variance      |
        e.age |   128.5885   9.876824                      110.617    149.479
   e.whpsleep |   563.2601   43.26375                     484.5389    654.770
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     36.29, Prob > chi2 = 0.0000

Endogenous variables

Observed:  age whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -3312.2093
Iteration 1:   log likelihood = -3312.2093

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3312.2093

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  age <-     |
       crhtw3 |   4.882082   .6713623     7.27   0.000     3.566236    6.19792
        _cons |   50.07363    .629633    79.53   0.000     48.83957    51.3076
-------------+----------------------------------------------------------------
  whpsleep <-|
         age |   .5911349   .1054724     5.60   0.000     .3844128     .79785
        _cons |  -11.72059   5.344283    -2.19   0.028    -22.19519   -1.24598
-------------+----------------------------------------------------------------
Variance     |
       e.age |   129.2045   9.924137                      111.1469    150.195
  e.whpsleep |   563.2601   43.26375                      484.5389    654.770
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     36.18, Prob > chi2 = 0.0000

Endogenous variables

Observed:  emplw24 whpsleep

Exogenous variables

Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -1515.1841
Iteration 1:   log likelihood = -1515.1841

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1515.1841

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  emplw24 <- |
       crhtw1 |  -.0024245   .0031699    -0.76   0.444    -.0086373    .003788
       _cons |   .0026053   .0029772     0.88   0.382      -.00323    .008440
-------------+----------------------------------------------------------------
  whpsleep <- |
      emplw24 |   60.46045   24.62702     2.46   0.014     12.19238    108.728
       _cons |   17.16956   1.337556    12.84   0.000       14.548    19.7911
-------------+----------------------------------------------------------------
Variance     |
    e.emplw24 |   .0029361   .0002255                      .0025257    .003413
   e.whpsleep |    604.701    46.4468                      520.1879    702.944
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     35.79, Prob > chi2 = 0.0000

Endogenous variables

Observed:  emplw24 whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -1512.1925
Iteration 1:   log likelihood = -1512.1925

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1512.1925

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  emplw24 <- |
       crhtw2 |  -.0026848   .0031968    -0.84   0.401    -.0089505    .003580
        _cons |   .0024558   .0030007     0.82   0.413    -.0034254     .00833
-------------+----------------------------------------------------------------
  whpsleep <- |
      emplw24 |   60.46045   24.62702     2.46   0.014     12.19238    108.728
        _cons |   17.16956   1.337556    12.84   0.000       14.548    19.7911
-------------+----------------------------------------------------------------
Variance     |
    e.emplw24 |    .002935   .0002254                      .0025248    .003411
   e.whpsleep |    604.701    46.4468                      520.1879    702.944
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     59.55, Prob > chi2 = 0.0000

Endogenous variables

Observed:  emplw24 whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -1511.8786
Iteration 1:   log likelihood = -1511.8786  (backed up)

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1511.8786

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  emplw24 <- |
       crhtw3 |  -.0026766   .0031998    -0.84   0.403    -.0089482     .00359
> 5
       _cons |   .0024567    .003001     0.82   0.413    -.0034251    .008338
> 4
             +----------------------------------------------------------------
> -
  whpsleep <-|
      emplw24 |   60.46045   24.62702     2.46   0.014     12.19238    108.728
> 5
       _cons |   17.16956   1.337556    12.84   0.000       14.548    19.7911
> 2
-------------+----------------------------------------------------------------
> -
Variance     |
    e.emplw24 |   .0029351   .0002254                      .0025249    .003411
> 9
   e.whpsleep |    604.701    46.4468                      520.1879    702.944
> 5
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     59.10, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc1w2 whpsleep

Exogenous variables

Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -2038.5038
Iteration 1:   log likelihood = -2038.5038

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2038.5038

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  inc1w2 <-  |
       crhtw1 |   .0027897    .014711     0.19   0.850    -.0260432    .031622
> 7
        _cons |   .0682431    .013817     4.94   0.000     .0411622    .095323
> 9
-------------+----------------------------------------------------------------
> -
  whpsleep <-|
       inc1w2 |   -.039732   5.357837    -0.01   0.994     -10.5409    10.4614
> 4
        _cons |    17.3506   1.395576    12.43   0.000     14.61532    20.0858
> 8
-------------+----------------------------------------------------------------
> -
Variance     |
     e.inc1w2 |   .0632367   .0048572                      .0543988    .073510
> 6
   e.whpsleep |   615.4521   47.27259                      529.4365    715.442
> 4
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     33.79, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc1w2 whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -2034.1476
Iteration 1:   log likelihood = -2034.1476

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2034.1476

------------------------------------------------------------------------------
> --
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> --
Structural   |
  inc1w2 <-  |
       crhtw2 |   .0251521   .0147765     1.70   0.089    -.0038094    .054113
> 5
        _cons |   .0724748   .0138698     5.23   0.000     .0452905     .09965
> 9
  -----------+----------------------------------------------------------------
> --
  whpsleep <-|
       inc1w2 |   -.039732   5.357837    -0.01   0.994     -10.5409    10.4614
> 4
        _cons |    17.3506   1.395576    12.43   0.000     14.61532    20.0858
> 8
-------------+----------------------------------------------------------------
> --
Variance     |
     e.inc1w2 |   .0627075   .0048165                      .0539435    .072895
> 4
   e.whpsleep |   615.4521   47.27259                      529.4365    715.442
> 4
-------------+----------------------------------------------------------------
> --
LR test of model vs. saturated: chi2(1)   =     56.92, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc1w2 whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -2033.7747
Iteration 1:   log likelihood = -2033.7747

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2033.7747

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  inc1w2 <-  |
       crhtw3 |   .0256598   .0147879     1.74   0.083    -.0033239    .054643
> 5
        _cons |   .0725748   .0138687     5.23   0.000     .0453926     .09975
> 7
  ------------+----------------------------------------------------------------
> —
  whpsleep <-|
       inc1w2 |   -.039732   5.357837    -0.01   0.994     -10.5409    10.4614
> 4
        _cons |    17.3506   1.395576    12.43   0.000     14.61532    20.0858
> 8
-------------+----------------------------------------------------------------
> —
Variance     |
     e.inc1w2 |   .0626867   .0048149                      .0539256    .072871
> 2
   e.whpsleep |   615.4521   47.27259                      529.4365    715.442
> 4
-------------+----------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     56.51, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc3w2 whpsleep

Exogenous variables

Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -2255.7418
Iteration 1:   log likelihood = -2255.7418

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2255.7418

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  inc3w2 <-  |
       crhtw1 | -.0125769   .0279666    -0.45   0.653    -.0673905    .042236
> 7
        _cons |  .3521949   .0262672    13.41   0.000     .3007122    .403677
> 6
  ------------+----------------------------------------------------------------
> -
  whpsleep <-|
       inc3w2 | -2.930759   2.813133    -1.04   0.297    -8.444398    2.58287
> 9
        _cons |  18.38534   1.673713    10.98   0.000     15.10493    21.6657
> 6
-------------+----------------------------------------------------------------
> -
Variance     |
     e.inc3w2 |  .2285425   .0175542                      .1966014     .26567
> 3
   e.whpsleep |   613.488   47.12173                      527.7469    713.159
> 2
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     33.61, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc3w2 whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -2252.4009
Iteration 1:   log likelihood = -2252.4009

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2252.4009

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
Structural    |
  inc3w2 <-   |
       crhtw2 |  -.0284892   .0281755    -1.01   0.312    -.0837122    .026733
        _cons |   .3487401   .0264465    13.19   0.000     .2969058    .400574
--------------+---------------------------------------------------------------
  whpsleep <- |
       inc3w2 |  -2.930759   2.813133    -1.04   0.297    -8.444398    2.58287
        _cons |   18.38534   1.673713    10.98   0.000     15.10493    21.6657
--------------+---------------------------------------------------------------
Variance      |
     e.inc3w2 |   .2279912   .0175119                      .1961272    .265032
   e.whpsleep |    613.488   47.12173                      527.7469    713.159
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     55.79, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc3w2 whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -2252.1038
Iteration 1:   log likelihood = -2252.1038

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2252.1038

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  inc3w2 <-  |
       crhtw3 |  -.0279662   .0282034    -0.99   0.321    -.0832439    .027311
> 6
        _cons |   .3488292   .0264504    13.19   0.000     .2969873    .400671
> 1
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
       inc3w2 |  -2.930759   2.813133    -1.04   0.297    -8.444398    2.58287
> 9
        _cons |   18.38534   1.673713    10.98   0.000     15.10493    21.6657
> 6
-------------+----------------------------------------------------------------
> —
Variance     |
     e.inc3w2 |   .2280175   .0175139                      .1961497    .265062
> 7
   e.whpsleep |    613.488   47.12173                      527.7469    713.159
> 2
-------------+----------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     55.38, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc4w2 whpsleep

Exogenous variables

Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -1946.8939
Iteration 1:   log likelihood = -1946.8939

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1946.8939

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  inc4w2 <-  |
       crhtw1 |   .0055752     .01123     0.50   0.620    -.0164352    .027585
       _cons |   .0391404   .0105476     3.71   0.000     .0184676    .059813
-------------+----------------------------------------------------------------
  whpsleep <-|
       inc4w2 |  -2.773495   7.014819    -0.40   0.693    -16.52229     10.975
       _cons |   17.45426   1.373689    12.71   0.000     14.76188    20.1466
-------------+----------------------------------------------------------------
Variance     |
     e.inc4w2 |   .0368507   .0028305                      .0317005    .042837
   e.whpsleep |   615.1686   47.25081                      529.1926    715.112
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     33.97, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc4w2 whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -1943.8824
Iteration 1:   log likelihood = -1943.8824

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1943.8824

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  inc4w2 <-  |
       crhtw2 |  -.0072199   .0113249    -0.64   0.524    -.0294162    .014976
> 4
        _cons |   .0370196   .0106299     3.48   0.000     .0161853    .057853
> 8
  -----------+----------------------------------------------------------------
> -
  whpsleep <-|
       inc4w2 |  -2.773495   7.014819    -0.40   0.693    -16.52229     10.975
> 3
        _cons |   17.45426   1.373689    12.71   0.000     14.76188    20.1466
> 4
-------------+----------------------------------------------------------------
> -
Variance     |
     e.inc4w2 |   .0368333   .0028292                      .0316855    .042817
> 5
   e.whpsleep |   615.1686   47.25081                      529.1926    715.112
> 8
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     56.25, Prob > chi2 = 0.0000

Endogenous variables

Observed:  inc4w2 whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -1943.2999
Iteration 1:   log likelihood = -1943.2999

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1943.2999

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  inc4w2 <-  |
       crhtw3 |  -.0109769   .0113266    -0.97   0.332    -.0331765    .011222
> 8
        _cons |   .0363254   .0106225     3.42   0.001     .0155056    .057145
> 3
  ------------+----------------------------------------------------------------
> —
  whpsleep <-|
       inc4w2 |  -2.773495   7.014819    -0.40   0.693    -16.52229     10.975
> 3
        _cons |   17.45426   1.373689    12.71   0.000     14.76188    20.1466
> 4
-------------+----------------------------------------------------------------
> —
Variance     |
     e.inc4w2 |   .0367756   .0028247                      .0316359    .042750
> 4
   e.whpsleep |   615.1686   47.25081                      529.1926    715.112
> 8
-------------+----------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     55.80, Prob > chi2 = 0.0000

Endogenous variables

Observed:  shrelaw1 whpsleep

Exogenous variables

Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -3723.8163
Iteration 1:   log likelihood = -3723.8163

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3723.8163

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  shrelaw1 <-|
       crhtw1|   6.13074    2.17532     2.82   0.005      1.86719    10.39429
       _cons|   30.47306    2.04313    14.91   0.000      26.4686    34.47752
-------------+----------------------------------------------------------------
  whpsleep <-|
     shrelaw1|   .145395   .0349367     4.16   0.000     .0769204    .213869
       _cons|   13.04396   1.672362     7.80   0.000     9.766188    16.32172
-------------+----------------------------------------------------------------
Variance     |
   e.shrelaw1|   1382.715   106.2057                      1189.467     1607.36
   e.whpsleep|   585.5372   44.97484                      503.7024    680.6673
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     28.69, Prob > chi2 = 0.0000

Endogenous variables

Observed:  shrelaw1 whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -3718.7628
Iteration 1:   log likelihood = -3718.7628

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3718.7628

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  shrelaw1 <-|
       crhtw2|   7.651572   2.180522     3.51   0.000     3.377827    11.9253
       _cons |   31.00972   2.046717    15.15   0.000     26.99822    35.0212
-------------+----------------------------------------------------------------
  whpsleep <-|
     shrelaw1|    .145395   .0349367     4.16   0.000     .0769204    .213869
       _cons |   13.04396   1.672362     7.80   0.000     9.766188    16.3217
-------------+----------------------------------------------------------------
Variance     |
   e.shrelaw1|   1365.513   104.8845                      1174.669    1587.36
   e.whpsleep|   585.5372   44.97484                      503.7024    680.667
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     48.60, Prob > chi2 = 0.0000

Endogenous variables

Observed:  shrelaw1 whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -3718.7359
Iteration 1:   log likelihood = -3718.7359

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3718.7359

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  shrelaw1 <-|
       crhtw3|   7.476168   2.184426     3.42   0.001     3.194771    11.7575
        _cons|   30.97935   2.048651    15.12   0.000     26.96407    34.9946
-------------+----------------------------------------------------------------
  whpsleep <-|
     shrelaw1|    .145395   .0349367     4.16   0.000     .0769204    .213869
        _cons|   13.04396   1.672362     7.80   0.000     9.766188    16.3217
-------------+----------------------------------------------------------------
Variance     |
   e.shrelaw1|    1367.85   105.0639                      1176.679    1590.07
   e.whpsleep|   585.5372   44.97484                      503.7024    680.667
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     48.40, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  shrelaw2 whpsleep

Exogenous variables
```

```
Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3684.8571
Iteration 1:   log likelihood = -3684.8571

Structural equation model                       Number of obs      =       338
Estimation method  = ml
Log likelihood     = -3684.8571

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  shrelaw2 <-|
       crhtw1|    9.99232   1.983305     5.04   0.000     6.105114    13.8795
> 3
       _cons|    28.2478   1.859702    15.19   0.000     24.60285    31.8927
> 5
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     shrelaw2|   .1105453   .0380427     2.91   0.004      .035983    .185107
> 7
       _cons|   14.42955   1.680356     8.59   0.000     11.13611    17.7229
> 9
-------------+----------------------------------------------------------------
> -
Variance     |
   e.shrelaw2|   1143.469   87.95912                      983.4384     1329.5
> 4
   e.whpsleep|   601.3572   46.25825                      517.1964    699.213
> 1
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     27.23, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  shrelaw2 whpsleep
```

```
Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3678.5528
Iteration 1:   log likelihood = -3678.5528

Structural equation model                       Number of obs      =       338
Estimation method  = ml
Log likelihood     = -3678.5528

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  shrelaw2 <-|
       crhtw2|   11.52971    1.97306     5.84   0.000      7.66258    15.3968
> 3
       _cons|   28.96435   1.852722    15.63   0.000     25.33308    32.5956
> 2
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     shrelaw2|   .1105453   .0380427     2.91   0.004      .035983    .185107
> 7
       _cons|   14.42955   1.680356     8.59   0.000     11.13611    17.7229
> 9
-------------+----------------------------------------------------------------
> -
Variance     |
   e.shrelaw2|   1116.541   85.88778                      960.2796     1298.2
> 3
   e.whpsleep|   601.3572   46.25825                      517.1964    699.213
> 1
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     48.24, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables
```

```
Observed:  shrelaw2 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3679.1833
Iteration 1:   log likelihood = -3679.1833

Structural equation model                       Number of obs      =       338
Estimation method  = ml
Log likelihood     = -3679.1833

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
--------------+---------------------------------------------------------------
> —
Structural    |
  shrelaw2 <- |
       crhtw3 |   11.28255   1.977936     5.70   0.000      7.40587    15.1592
> 4
        _cons |   28.93806   1.857402    15.58   0.000     25.29762     32.578
> 5
  ------------+---------------------------------------------------------------
> —
  whpsleep <- |
     shrelaw2 |   .1105453   .0380427     2.91   0.004      .035983    .185107
> 7
        _cons |   14.42955   1.680356     8.59   0.000     11.13611    17.7229
> 9
--------------+---------------------------------------------------------------
> —
Variance      |
   e.shrelaw2 |   1121.391   86.26081                      964.4503    1303.86
> 9
   e.whpsleep |   601.3572   46.25825                      517.1964    699.213
> 1
--------------+---------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     48.16, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  dafter whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3789.8816
Iteration 1:   log likelihood = -3789.8816

Structural equation model                       Number of obs      =       338
Estimation method  = ml
Log likelihood     = -3789.8816

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  dafter <-  |
       crhtw1 | -3.009633   2.698124    -1.12   0.265    -8.297859    2.27859
> 3
        _cons |  5.311681    2.53165     2.10   0.036     .3497375    10.2736
> 2
  ---------- +----------------------------------------------------------------
> -
  whpsleep <-|
       dafter |  .0688925   .0290778     2.37   0.018     .0119011    .125883
> 9
        _cons |    17.003   1.349736    12.60   0.000     14.35756    19.6484
> 3
-------------+----------------------------------------------------------------
> -
Variance     |
     e.dafter |  2113.784   162.5988                      1817.957     2457.7
> 5
   e.whpsleep |  606.3108   46.63929                      521.4567    704.972
> 7
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     37.30, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  dafter whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3787.0422
Iteration 1:   log likelihood = -3787.0422

Structural equation model                       Number of obs      =       338
Estimation method  = ml
Log likelihood     = -3787.0422

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
--------------+---------------------------------------------------------------
> —
Structural    |
  dafter <-   |
       crhtw2 |   3.030983   2.720912     1.11   0.265    -2.301906    8.36387
> 3
        _cons |   6.320788    2.55246     2.48   0.013     1.318059    11.3235
> 2
  ------------+---------------------------------------------------------------
> —
  whpsleep <- |
       dafter |   .0688925   .0290778     2.37   0.018     .0119011    .125883
> 9
        _cons |     17.003   1.349736    12.60   0.000     14.35756    19.6484
> 3
--------------+---------------------------------------------------------------
> —
Variance      |
     e.dafter |   2113.805   162.6004                      1817.975    2457.77
> 4
   e.whpsleep |   606.3108   46.63929                      521.4567    704.972
> 7
--------------+---------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     56.38, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
```

```
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  dafter whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3786.7464
Iteration 1:   log likelihood = -3786.7464

Structural equation model                       Number of obs      =       338
Estimation method  = ml
Log likelihood     = -3786.7464

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
------------+-----------------------------------------------------------------
Structural   |
  dafter <-  |
       crhtw3 |   3.091364   2.722908     1.14   0.256    -2.245438    8.42816
        _cons |   6.332646   2.552453     2.48   0.013      1.32993    11.3353
  ----------+-----------------------------------------------------------------
  whpsleep <-|
       dafter |   .0688925   .0290778     2.37   0.018     .0119011    .125883
        _cons |     17.003   1.349736    12.60   0.000     14.35756    19.6484
------------+-----------------------------------------------------------------
Variance     |
     e.dafter |   2113.506   162.5774                      1817.717    2457.42
   e.whpsleep |   606.3108   46.63929                      521.4567    704.972
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     55.88, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  BSIposymp whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3477.5638
Iteration 1:   log likelihood = -3477.5638

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3477.5638

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  BSIposymp <-
       crhtw1 |   8.980154   1.259147     7.13   0.000     6.512271    11.448
> 04
        _cons |    76.1612   1.182631    64.40   0.000     73.84329    78.479
> 11
  -----------+----------------------------------------------------------------
> ---
  whpsleep <-
    BSIposymp |   .6228113   .0475743    13.09   0.000     .5295673    .71605
> 52
        _cons |  -29.29129   3.728001    -7.86   0.000    -36.59803   -21.984
> 54
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.BSIposymp |   463.2751   35.58394                      398.5277    538.54
> 17
    e.whpsleep |   408.7877    31.3988                      351.6555     475.2
> 02
-------------+----------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      5.77, Prob > chi2 = 0.0163
```

```
Endogenous variables

Observed:  BSIposymp whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3449.7909
Iteration 1:   log likelihood = -3449.7909

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3449.7909

------------------------------------------------------------------------------
> ------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ------------------------------------------------------------------------
Structural   |
  BSIposymp <-
       crhtw2 |   12.51389   1.180342    10.60   0.000     10.20046    14.827
> 32
        _cons |    77.1876   1.107911    69.67   0.000     75.01614    79.359
> 07
-------------+----------------------------------------------------------------
> ------------------------------------------------------------------------
  whpsleep <-  |
     BSIposymp |   .6228113   .0475743    13.09   0.000     .5295673    .71605
> 52
        _cons |  -29.29129   3.728001    -7.86   0.000    -36.59803   -21.984
> 54
-------------+----------------------------------------------------------------
> ------------------------------------------------------------------------
Variance     |
   e.BSIposymp |   400.1201   30.73304                      344.1993    465.12
> 61
    e.whpsleep |   408.7877    31.3988                      351.6555     475.2
> 02
------------------------------------------------------------------------------
> ------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      7.18, Prob > chi2 = 0.0074
```

```
Endogenous variables

Observed:  BSIposymp whhpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3447.9306
Iteration 1:   log likelihood = -3447.9306

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3447.9306

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  BSIposymp <-
       crhtw3 |   12.69567   1.176077    10.79   0.000      10.3906    15.000
> 74
        _cons |    77.2243   1.102977    70.01   0.000     75.06251     79.38
> 61
  -----------+----------------------------------------------------------------
> ---
  whpsleep <-
     BSIposymp |   .6228113   .0475743    13.09   0.000     .5295673    .71605
> 52
        _cons |  -29.29129   3.728001    -7.86   0.000    -36.59803   -21.984
> 54
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.BSIposymp |   396.4926   30.45442                      341.0788    460.90
> 94
    e.whpsleep |   408.7877    31.3988                      351.6555     475.2
> 02
------------------------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      6.51, Prob > chi2 = 0.0107
```

```
Endogenous variables

Observed:  WHPpain whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3405.8542
Iteration 1:   log likelihood = -3405.8542

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3405.8542

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  WHPpain <- |
       crhtw1 |   3.750412   .9400436     3.99   0.000     1.907961    5.59286
> 4
        _cons |   10.74268   .8829189    12.17   0.000     9.012189    12.4731
> 7
             -+----------------------------------------------------------------
> -
  whpsleep <-|
      WHPpain |   .7067514   .0724028     9.76   0.000     .5648446    .848658
> 3
        _cons |    10.1322   1.401283     7.23   0.000      7.38574    12.8786
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
    e.WHPpain |   258.2155   19.83341                      222.1273    300.166
> 8
   e.whpsleep |   480.4183   36.90071                       413.275    558.470
> 1
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     20.43, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  WHPpain whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3386.9057
Iteration 1:   log likelihood = -3386.9057  (backed up)

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3386.9057

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  WHPpain <- |
       crhtw2 |   6.464798   .9044495     7.15   0.000     4.692109    8.23748
> 6
        _cons |   11.39925    .848949    13.43   0.000     9.735336    13.0631
> 6
-------------+----------------------------------------------------------------
> -
  whpsleep <-|
      WHPpain |   .7067514   .0724028     9.76   0.000     .5648446    .848658
> 3
        _cons |    10.1322   1.401283     7.23   0.000      7.38574    12.8786
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
    e.WHPpain |   234.9328   18.04508                      202.0986    273.101
> 4
   e.whpsleep |   480.4183   36.90071                       413.275    558.470
> 1
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     25.55, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  WHPpain whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3382.0218
Iteration 1:   log likelihood = -3382.0218  (backed up)

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -3382.0218

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  WHPpain <- |
       crhtw3 |   7.018416   .8931795     7.86   0.000     5.267816    8.76901
> 5
        _cons |   11.50291   .8376629    13.73   0.000     9.861124     13.144
> 7
             -+----------------------------------------------------------------
> —
  whpsleep <-|
      WHPpain |   .7067514   .0724028     9.76   0.000     .5648446    .848658
> 3
        _cons |    10.1322   1.401283     7.23   0.000      7.38574    12.8786
> 7
-------------+----------------------------------------------------------------
> —
Variance     |
    e.WHPpain |   228.6868   17.56533                      196.7256    265.840
> 8
   e.whpsleep |   480.4183   36.90071                       413.275    558.470
> 1
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     22.57, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  illw1 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2158.4842
Iteration 1:   log likelihood = -2158.4842

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2158.4842

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  illw1 <-   |
       crhtw1 |  -.0014219   .0213089    -0.07   0.947    -.0431866    .040342
        _cons |   .0941932    .020014     4.71   0.000     .0549665    .133419
-------------+----------------------------------------------------------------
  whpsleep <-|
        illw1 |   12.30936   3.638136     3.38   0.001     5.178746    19.4399
        _cons |   16.18596   1.368988    11.82   0.000     13.50279    18.8691
-------------+----------------------------------------------------------------
Variance     |
      e.illw1 |   .1326807   .0101911                      .1141372    .154236
   e.whpsleep |   595.3481   45.72842                      512.1422    692.072
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     35.15, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  illw1 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2152.8847
Iteration 1:   log likelihood = -2152.8847

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2152.8847

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  illw1 <-   |
       crhtw2 |   .0494761   .0213255     2.32   0.020      .007679    .091273
       _cons |   .1034992   .0200169     5.17   0.000     .0642669    .142731
-------------+----------------------------------------------------------------
  whpsleep <-|
        illw1 |  12.30936   3.638136     3.38   0.001     5.178746    19.4399
       _cons |   16.18596   1.368988    11.82   0.000     13.50279    18.8691
-------------+----------------------------------------------------------------
Variance     |
      e.illw1 |   .1306087    .010032                      .1123548    .151828
   e.whpsleep |   595.3481   45.72842                      512.1422    692.072
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     52.26, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  illw1 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2152.5773
Iteration 1:   log likelihood = -2152.5773

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2152.5773

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  illw1 <-   |
       crhtw3|   .049437    .021346     2.32   0.021     .0075996    .091274
       _cons |  .1035047   .0200192     5.17   0.000     .0642678    .142741
-------------+----------------------------------------------------------------
  whpsleep <-|
        illw1|  12.30936   3.638136     3.38   0.001     5.178746    19.4399
       _cons |  16.18596   1.368988    11.82   0.000     13.50279    18.8691
-------------+----------------------------------------------------------------
Variance     |
      e.illw1|  .1306158   .0100325                      .1123609    .151836
   e.whpsleep|  595.3481   45.72842                      512.1422    692.072
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     51.85, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  illw3 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2480.9165
Iteration 1:   log likelihood = -2480.9165

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2480.9165

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  illw3 <-   |
       crhtw1 | -.0596154   .0551874    -1.08   0.280    -.1677807    .048549
       _cons |  .4841529   .0518337     9.34   0.000     .3825607    .585745
-------------+----------------------------------------------------------------
  whpsleep <-|
        illw3 |  4.812018   1.401674     3.43   0.001     2.064787     7.5592
       _cons |  14.97738   1.493749    10.03   0.000     12.04969    17.9050
-------------+----------------------------------------------------------------
Variance     |
      e.illw3 |  .8899501   .0683567                      .7655706    1.03453
   e.whpsleep |   594.774   45.68432                      511.6484    691.404
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     37.79, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  illw3 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2468.5075
Iteration 1:   log likelihood = -2468.5075

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2468.5075

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  illw3 <-   |
       crhtw2 |   .2464559    .054132     4.55   0.000     .1403591    .352552
       _cons |   .5379751   .0508102    10.59   0.000     .4383888    .637561
-------------+----------------------------------------------------------------
  whpsleep <-|
        illw3 |   4.812018   1.401674     3.43   0.001     2.064787     7.5592
       _cons |   14.97738   1.493749    10.03   0.000     12.04969    17.9050
-------------+----------------------------------------------------------------
Variance     |
      e.illw3 |   .8415554   .0646395                      .7239396    .978279
   e.whpsleep |    594.774   45.68432                      511.6484    691.404
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     48.20, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  illw3 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2462.1523
Iteration 1:   log likelihood = -2462.1523

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2462.1523

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  illw3 <-   |
       crhtw3 |   .3093305    .053226     5.81   0.000     .2050096    .413651
       _cons |   .5496237   .0499176    11.01   0.000     .4517869    .647460
-------------+----------------------------------------------------------------
  whpsleep <-|
        illw3 |   4.812018   1.401674     3.43   0.001     2.064787     7.5592
       _cons |   14.97738   1.493749    10.03   0.000     12.04969    17.9050
-------------+----------------------------------------------------------------
Variance     |
      e.illw3 |   .8121021   .0623772                      .6986027    .944041
   e.whpsleep |    594.774   45.68432                      511.6484    691.404
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     46.28, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  avgcumdosew1 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2675.9986
Iteration 1:   log likelihood = -2675.9986

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2675.9986

------------------------------------------------------------------------------
> ------
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Inte
> rval]
-----------------+------------------------------------------------------------
> ------
Structural       |
  avgcumdosew1 <-|
         crhtw1  |   .1559612   .0972536     1.60   0.109    -.0346524    .34
> 65748
           _cons |   .4522623   .0913437     4.95   0.000     .2732319    .63
> 12927
  ---------------+------------------------------------------------------------
> ------
  whpsleep <-    |
     avgcumdosew1|   1.897497   .8008306     2.37   0.018     .3278975    3.4
> 67096
           _cons |    16.5318   1.380055    11.98   0.000     13.82694    19.
> 23666
-----------------+------------------------------------------------------------
> ------
Variance         |
   e.avgcumdosew1|   2.763744   .2122819                      2.377483    3.2
> 12759
       e.whpsleep|   605.4259   46.50248                      520.8115    703
> .7872
-----------------+------------------------------------------------------------
> ------
LR test of model vs. saturated: chi2(1)   =     32.09, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  avgcumdosew1 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2673.4756
Iteration 1:   log likelihood = -2673.4756

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2673.4756

------------------------------------------------------------------------------
> ------
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Inte
> rval]
-----------------+------------------------------------------------------------
> ------
Structural       |
  avgcumdosew1 <-|
         crhtw2  |   .1298963   .0982166     1.32   0.186    -.0626047    .32
> 23974
           _cons |   .4539992   .0921897     4.92   0.000     .2733108    .63
> 46877
  ---------------+------------------------------------------------------------
> ------
  whpsleep <-    |
     avgcumdosew1|   1.897497   .8008306     2.37   0.018     .3278975    3.4
> 67096
           _cons |    16.5318   1.380055    11.98   0.000     13.82694    19.
> 23666
-----------------+------------------------------------------------------------
> ------
Variance         |
   e.avgcumdosew1|   2.770416   .2127943                      2.383222    3.2
> 20515
       e.whpsleep|   605.4259   46.50248                      520.8115    703
> .7872
-----------------+------------------------------------------------------------
> ------
LR test of model vs. saturated: chi2(1)   =     54.83, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  avgcumdosew1 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2673.1807
Iteration 1:   log likelihood = -2673.1807

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -2673.1807

------------------------------------------------------------------------------
> ------
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Inte
> rval]
-----------------+------------------------------------------------------------
> ------
Structural       |
  avgcumdosew1 <-|
         crhtw3  |   .1283977   .0983147     1.31   0.192    -.0642955    .32
> 10909
           _cons |   .4537564   .0922038     4.92   0.000     .2730402    .63
> 44725
  ---------------+------------------------------------------------------------
> ------
  whpsleep <-    |
    avgcumdosew1 |   1.897497   .8008306     2.37   0.018     .3278975    3.4
> 67096
           _cons |    16.5318   1.380055    11.98   0.000     13.82694    19.
> 23666
-----------------+------------------------------------------------------------
> ------
Variance         |
   e.avgcumdosew1 |    2.77077   .2128215                      2.383527    3.2
> 20926
       e.whpsleep |   605.4259   46.50248                      520.8115    703
> .7872
-----------------+------------------------------------------------------------
> ------
LR test of model vs. saturated: chi2(1)   =     54.43, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx3nr7 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -1809.5557
Iteration 1:   log likelihood = -1809.5557

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1809.5557

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx3nr7 <-|
       crhtw1|   .0263074   .0075801     3.47   0.001     .0114507    .041164
> 1
       _cons |   .0214379   .0071194     3.01   0.003      .007484    .035391
> 7
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     icdx3nr7|   29.31936   10.09395     2.90   0.004      9.53558    49.1031
> 3
       _cons |   16.82898   1.342879    12.53   0.000     14.19698    19.4609
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx3nr7|   .0167893   .0012896                      .0144428     .01951
> 7
   e.whpsleep|   600.5069   46.12466                        516.58    698.069
> 1
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     29.26, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx3nr7 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -1807.3399
Iteration 1:   log likelihood = -1807.3399

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1807.3399

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx3nr7 <-|
       crhtw2|   .0249057   .0076621     3.25   0.001     .0098883    .039923
> 1
       _cons |   .0222819   .0071919     3.10   0.002     .0081861    .036377
> 8
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     icdx3nr7|   29.31936   10.09395     2.90   0.004      9.53558    49.1031
> 3
       _cons |   16.82898   1.342879    12.53   0.000     14.19698    19.4609
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx3nr7|   .0168604    .001295                      .014504    .019599
> 6
   e.whpsleep|   600.5069   46.12466                       516.58    698.069
> 1
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     51.24, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx3nr7 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -1807.6312
Iteration 1:   log likelihood = -1807.6312

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1807.6312

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx3nr7 <-|
       crhtw3|   .0234479    .007683     3.05   0.002     .0083895    .038506
> 3
       _cons |   .0220197   .0072054     3.06   0.002     .0078973    .036142
> 1
  ---------- +----------------------------------------------------------------
> -
  whpsleep <-|
     icdx3nr7|   29.31936   10.09395     2.90   0.004      9.53558    49.1031
> 3
       _cons |   16.82898   1.342879    12.53   0.000     14.19698    19.4609
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx3nr7|   .0169209   .0012997                      .0145561      .0196
> 7
   e.whpsleep|   600.5069   46.12466                        516.58    698.069
> 1
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     51.12, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr7 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood =  -1514.349
Iteration 1:   log likelihood =  -1514.349

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     =  -1514.349

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx4nr7 <-|
       crhtw1|   .0047559   .0031621     1.50   0.133    -.0014417    .010953
> 4
       _cons |   .0036257   .0029699     1.22   0.222    -.0021952    .009446
> 7
  ---------- +----------------------------------------------------------------
> -
  whpsleep <-|
     icdx4nr7|   60.46045   24.62702     2.46   0.014     12.19238    108.728
> 5
       _cons |   17.16956   1.337556    12.84   0.000       14.548    19.7911
> 2
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx4nr7|   .0029217   .0002244                      .0025133    .003396
> 3
   e.whpsleep|    604.701    46.4468                      520.1879    702.944
> 5
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     32.17, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr7 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -1511.4149
Iteration 1:   log likelihood = -1511.4149

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1511.4149

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx4nr7 <-|
       crhtw2|   .0048025   .0031895     1.51   0.132    -.0014488    .011053
       _cons |   .0038336   .0029938     1.28   0.200    -.0020342    .009701
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx4nr7|   60.46045   24.62702     2.46   0.014     12.19238    108.728
       _cons |   17.16956   1.337556    12.84   0.000       14.548    19.7911
-------------+----------------------------------------------------------------
Variance     |
   e.icdx4nr7|   .0029216   .0002244                      .0025133    .003396
   e.whpsleep|    604.701    46.4468                      520.1879    702.944
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     54.48, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr7 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood =  -1511.153
Iteration 1:   log likelihood =  -1511.153

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     =  -1511.153

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx4nr7 <-|
       crhtw3|   .0046896    .003193     1.47   0.142    -.0015685    .010947
> 8
       _cons|    .003814   .0029945     1.27   0.203    -.0020552    .009683
> 2
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     icdx4nr7|   60.46045   24.62702     2.46   0.014     12.19238    108.728
> 5
       _cons|   17.16956   1.337556    12.84   0.000       14.548    19.7911
> 2
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx4nr7|   .0029226   .0002245                      .0025141    .003397
> 4
   e.whpsleep|    604.701    46.4468                      520.1879    702.944
> 5
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     54.12, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr12 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -1515.4293
Iteration 1:   log likelihood = -1515.4293

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1515.4293

------------------------------------------------------------------------------
> ------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ------
Structural   |
  icdx4nr12 <-
       crhtw1 |  -.0009735   .0031722    -0.31   0.759    -.0071908    .00524
> 38
        _cons |   .0028115   .0029794     0.94   0.345     -.003028     .0086
> 51
  -----------+----------------------------------------------------------------
> ------
  whpsleep <-  |
     icdx4nr12 |   60.46045   24.62702     2.46   0.014     12.19238    108.72
> 85
        _cons |   17.16956   1.337556    12.84   0.000       14.548    19.791
> 12
-------------+----------------------------------------------------------------
> ------
Variance     |
   e.icdx4nr12 |   .0029403   .0002258                      .0025294     .0034
> 18
    e.whpsleep |    604.701    46.4468                      520.1879    702.94
> 45
------------------------------------------------------------------------------
> ------
LR test of model vs. saturated: chi2(1)   =     34.95, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr12 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -1512.4898
Iteration 1:   log likelihood = -1512.4898

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     = -1512.4898

------------------------------------------------------------------------------
> ——
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ——
Structural   |
  icdx4nr12 <-
       crhtw2 |  -.0010612   .0031996    -0.33   0.740    -.0073323      .005
> 21
        _cons |   .0027546   .0030033     0.92   0.359    -.0031318    .00864
> 09
  -----------+----------------------------------------------------------------
> ——
  whpsleep <-  |
     icdx4nr12 |   60.46045   24.62702     2.46   0.014     12.19238    108.72
> 85
        _cons |   17.16956   1.337556    12.84   0.000       14.548    19.791
> 12
-------------+----------------------------------------------------------------
> ——
Variance     |
   e.icdx4nr12 |   .0029402   .0002258                      .0025293    .00341
> 79
    e.whpsleep |    604.701    46.4468                      520.1879    702.94
> 45
------------------------------------------------------------------------------
> ——
LR test of model vs. saturated: chi2(1)   =     58.26, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr12 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood =  -1512.174
Iteration 1:   log likelihood =  -1512.174

Structural equation model                       Number of obs      =       339
Estimation method  = ml
Log likelihood     =  -1512.174

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  icdx4nr12 <-
       crhtw3 |  -.0010542   .0032026    -0.33   0.742    -.0073312    .00522
> 29
        _cons |   .0027556   .0030036     0.92   0.359    -.0031313    .00864
> 25
  -----------+----------------------------------------------------------------
> ---
  whpsleep <-  |
     icdx4nr12 |   60.46045   24.62702     2.46   0.014     12.19238    108.72
> 85
        _cons |   17.16956   1.337556    12.84   0.000       14.548    19.791
> 12
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.icdx4nr12 |   .0029402   .0002258                      .0025293    .00341
> 79
    e.whpsleep |    604.701    46.4468                      520.1879    702.94
> 45
-------------+----------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =     57.81, Prob > chi2 = 0.0000
```

```
80 .
81 . * Possible male sleep indirect effects -------------------------------------
   > ---
82 . *-+- Possible indirect effects through
83 . * wave 1 icdx3nr7 pain BISposymp shrelaw1 shrelaw2 shrelaw1 age
84 . * wave 2 icdx3nr7 illw3 illw1 pain BSIposymp shrelaw2 shrelaw1 inc1w2 inc1w
   > age
85 . * wave 3 icdx3nr7 illw3 illw1 pain BSIposymp shrelaw2 shrelaw1  inc1w2 age
86 . *-----------------------------------------------------------------------------
   > ---
87 . /*
   >
   > EQ(71) Modelling WHPsleep by OLS-CS
   >        The dataset is: /Users/robertyaffee/Documents/data/research/chwk/phas
   > e3/
   >        data/ox/workingdatasets/MARS/gals.dta
   >        The estimation sample is: 1 - 363
   >        Dropped 2 observation(s) with missing values from the sample
   >
   >                   Coefficient  Std.Error      HACSE  t-HACSE  t-prob Part.R^
   > 2
   > sepaw2               -26.8551      8.383      5.060    -5.31  0.0000   0.074
   > 5
   > shhousw2            0.0659946    0.03288    0.03315     1.99  0.0473   0.011
   > 2
   > sufamw1            -0.0327914    0.03549    0.02975    -1.10  0.2711   0.003
   > 5
   > pillw2               -1.10178     0.3324     0.2845    -3.87  0.0001   0.041
   > 1
   > radchw3             -0.128170    0.03728    0.02801    -4.58  0.0000   0.056
   > 4
   > WHPpain              0.438681    0.07103    0.07325     5.99  0.0000   0.093
   > 0
   > HP2probsoc            14.3111      3.544      4.216     3.39  0.0008   0.031
   > 9
   > BSIposymp            0.219874    0.03616    0.03478     6.32  0.0000   0.102
   > 5
   > radhw1       U     0.0290023    0.05173    0.04457    0.651  0.5157   0.0012
   > radhw2       U     -0.128956     0.1199     0.1024    -1.26  0.2087   0.0045
   > radhw3       U      0.187958     0.1026    0.09274     2.03  0.0434   0.0116
   >
   > sigma                  23.044  RSS                 185858.71
   > log-likelihood       -1639.25
   > no. of observations       361  no. of parameters          11
   > mean(WHPsleep)        26.3552  se(WHPsleep)          30.9492
   > When the log-likelihood constant is NOT included:
   > AIC                   6.30481  SC                    6.42330
   > HQ                    6.35192  FPE                   547.206
   > When the log-likelihood constant is included:
```

```
   > AIC                    9.14268  SC                     9.26118
   > HQ                     9.18980  FPE                    9345.98
   >
   > Normality test:   Chi^2(2)  =   72.322 [0.0000]**
   > Hetero test:      F(20,340) =   1.7360 [0.0267]*
   > Hetero-X test:    F(56,304) =  0.91870 [0.6407]
   > RESET23 test:     F(2,348)  =   10.472 [0.0000]**
   > */
88 .
89 . /* candiate illnesses  for female sleep model
   >
   > foreach i in 7 {
   > foreach j in 1 5 6 {
   > foreach k in 3 {
   > foreach m in 2 {
   > foreach n in 4 {
   > regress whpsleep icdx`i'nr1-icdx`i'nr28 if gender==2
   > regress whpsleep icdx`j'nr1-icdx`j'nr18 if gender==2
   > regress whpsleep icdx`k'nr1-icdx`k'nr11 if gender==2
   > regress whpsleep icdx`m'nr1-icdx`m'nr8 if gender==2
   > regress whpsleep icdx`n'nr1-icdx`n'nr20 if gender==2
   > }
   > }
   > }
   > }
   > }
   > */
90 .
91 . * for females:
92 . des icdx1nr9 icdx3nr4 icdx3nr5 icdx4nr6 icdx4nr17 icdx5nr4 icdx5nr10 icdx6nr
   > 5 ///
   >   icdx6nr6 icdx6nr11 icdx6nr12 icdx6nr15

                 storage  display     value
   variable name   type   format      label      variable label
   ------------------------------------------------------------------------------
   icdx1nr9        double %8.0g                  icdx1nr==454 chronic t & a dis
   icdx3nr4        double %8.0g                  icdx3nr==rheum fev w/o hrt
                                                   involv
   icdx3nr5        double %8.0g                  icdx3nr==hypertension
   icdx4nr6        double %8.0g                  icdx4nr==hypertension
   icdx4nr17       double %8.0g                  icdx4nr==renal/ureteral calculus
   icdx5nr4        double %8.0g                  icdx5nr==rheum fev w/o hrt
                                                   involv
   icdx5nr10       double %8.0g                  icdx5nr==ac bronchitis/brnchial
   icdx6nr5        double %8.0g                  icdx6nr==hypertension
   icdx6nr6        double %8.0g                  icdx6nr==acute myocardial
                                                   infarct
   icdx6nr11       double %8.0g                  icdx6nr==regional enteritis
```

```
   icdx6nr12       double %8.0g                  icdx6nr==575.1 cholecystitis
   icdx6nr15       double %8.0g                  icdx6nr==renal/ureteral calculus

93 .
94 . *-----------------   Female Sleep crhtw models-----------------------------
   > --------
95 . // H8: Full Female Sleep Model
96 .
97 . des bffpain24 bffpain26 BFdepx1 icdx1nr9 icdx3nr4 icdx3nr5 icdx4nr6 icdx4nr1
   > 7 ///
   >    icdx5nr4 icdx5nr10 icdx6nr5 icdx6nr6 icdx6nr11 icdx6nr12 icdx6nr15

                 storage  display     value
   variable name   type   format      label      variable label
   ------------------------------------------------------------------------------
   bffpain24       float  %9.0g                  max(0, 21 - csprbslv) *
                                                    bffpain21
   bffpain26       float  %9.0g                  max(0, 60 - phlthw1)
   BFdepx1         float  %9.0g                   max(0, WHPer + 3.14933e-007)
   icdx1nr9        double %8.0g                  icdx1nr==454 chronic t & a dis
   icdx3nr4        double %8.0g                  icdx3nr==rheum fev w/o hrt
                                                    involv
   icdx3nr5        double %8.0g                  icdx3nr==hypertension
   icdx4nr6        double %8.0g                  icdx4nr==hypertension
   icdx4nr17       double %8.0g                  icdx4nr==renal/ureteral calculus
   icdx5nr4        double %8.0g                  icdx5nr==rheum fev w/o hrt
                                                    involv
   icdx5nr10       double %8.0g                  icdx5nr==ac bronchitis/brnchial
   icdx6nr5        double %8.0g                  icdx6nr==hypertension
   icdx6nr6        double %8.0g                  icdx6nr==acute myocardial
                                                    infarct
   icdx6nr11       double %8.0g                  icdx6nr==regional enteritis
   icdx6nr12       double %8.0g                  icdx6nr==575.1 cholecystitis
   icdx6nr15       double %8.0g                  icdx6nr==renal/ureteral calculus

98 .
99 . regress WHPsleep age sepaw2  sufamw1  pillw2  radchw3 WHPpain bffpain24 bffp
   > ain26   ///
   >   BSIanx HP2probsoc HP2pbfhm BSIposymp BSItotal BSIdep crhtw1 crhtw2 crhtw3
   >  ///
   >   BFdepx1 ///
   >   icdx1nr9 icdx3nr4 icdx3nr5 icdx4nr6 icdx4nr17 icdx5nr4 icdx5nr10 icdx6nr5
   > ///
   >   icdx6nr6 icdx6nr11 icdx6nr12 icdx6nr15 if gender==2, vce(cluster id)
   note: icdx6nr15 omitted because of collinearity
```

Linear regression

Number of obs	=	361
F(27, 360)	=	.
Prob > F	=	.
R-squared	=	0.6163
Root MSE	=	19.992

(Std. Err. adjusted for 361 clusters in id)

WHPsleep	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
age	.2885584	.108848	2.65	0.008	.0745006	.5026161
sepaw2	-18.78591	4.288654	-4.38	0.000	-27.21987	-10.35195
sufamw1	-.0056148	.0305865	-0.18	0.854	-.0657655	.0545359
pillw2	-.7835463	.3081868	-2.54	0.011	-1.389619	-.1774736
radchw3	-.0644864	.0320315	-2.01	0.045	-.1274788	-.001494
WHPpain	.2091758	.0760946	2.75	0.006	.0595301	.3588215
bffpain24	-5.310912	1.011869	-5.25	0.000	-7.300828	-3.320995
bffpain26	-.242837	.1108689	-2.19	0.029	-.4608691	-.0248049
BSIanx	.2567236	.6359012	0.40	0.687	-.9938241	1.507271
HP2probsoc	7.10925	4.185774	1.70	0.090	-1.12239	15.34089
HP2pbfhm	-2.568178	4.57417	-0.56	0.575	-11.56363	6.427272
BSIposymp	2.567843	.719277	3.57	0.000	1.153331	3.982356
BSItotal	-2.231476	.6698732	-3.33	0.001	-3.548833	-.9141203
BSIdep	-.7409658	.5678523	-1.30	0.193	-1.85769	.3757587
crhtw1	3.684884	1.716231	2.15	0.032	.3097866	7.059982
crhtw2	-1.956705	3.852706	-0.51	0.612	-9.533342	5.619931
crhtw3	2.381087	3.424844	0.70	0.487	-4.354128	9.116301
BFdepx1	.6455258	.1099483	5.87	0.000	.4293041	.8617475
icdx1nr9	-.5814064	7.835166	-0.07	0.941	-15.98985	14.82704
icdx3nr4	11.16885	11.3931	0.98	0.328	-11.23655	33.57424
icdx3nr5	11.09276	4.120844	2.69	0.007	2.988807	19.19671
icdx4nr6	26.93376	12.5339	2.15	0.032	2.28489	51.58262
icdx4nr17	23.14041	20.69039	1.12	0.264	-17.54879	63.82962
icdx5nr4	53.13371	6.765575	7.85	0.000	39.82869	66.43872
icdx5nr10	-10.45278	12.66422	-0.83	0.410	-35.35792	14.45237
icdx6nr5	64.92306	12.12459	5.35	0.000	41.07912	88.76699
icdx6nr6	-4.550941	7.811188	-0.58	0.561	-19.91223	10.81035
icdx6nr11	24.76754	19.6241	1.26	0.208	-13.82473	63.35981
icdx6nr12	.0993212	5.82067	0.02	0.986	-11.34746	11.54611
icdx6nr15	0	(omitted)				
_cons	-11.61046	7.229918	-1.61	0.109	-25.82864	2.607715

```
100 .
101 . // H8: Trimmed Female Sleep Model
102 .
103 . des bffpain24 bffpain26 BFdepx1  icdx3nr5 icdx4nr6 ///
    >   icdx5nr4 icdx6nr5

                 storage  display     value
    variable name   type   format      label      variable label
    ------------------------------------------------------------------------------
    bffpain24       float  %9.0g                  max(0, 21 - csprbslv) *
                                                    bffpain21
    bffpain26       float  %9.0g                  max(0, 60 - phlthw1)
    BFdepx1         float  %9.0g                   max(0, WHPer + 3.14933e-007)
    icdx3nr5        double %8.0g                  icdx3nr==hypertension
    icdx4nr6        double %8.0g                  icdx4nr==hypertension
    icdx5nr4        double %8.0g                  icdx5nr==rheum fev w/o hrt
                                                    involv
    icdx6nr5        double %8.0g                  icdx6nr==hypertension

104 .
105 . cap drop H8FemaleSLpred

106 . cap drop h8FSLsepred

107 . cap drop FSLrsires

108 . cap drop upbSLF

109 . cap drop lpbSLF

110 . cap drop rFslp1

111 .
112 .
113 .
114 .
115 .
```

```
116 .
117 . regress WHPsleep age sepaw2   pillw2  radchw3 WHPpain bffpain24 bffpain26
    > ///
    >   BSIanx HP2probsoc BSIposymp BSItotal BSIdep crhtw1 crhtw2 crhtw3  ///
    >   BFdepx1 icdx3nr5 icdx4nr6 icdx5nr4 icdx6nr5 ///
    >    if gender==2, vce(cluster id)

Linear regression                                      Number of obs =     362
                                                       F( 19,   361) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.6054
                                                       Root MSE      =  19.996

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

WHPsleep	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
age	.2748115	.1074232	2.56	0.011	.0635576	.4860654
sepaw2	-18.77988	4.034896	-4.65	0.000	-26.71473	-10.84502
pillw2	-.8019393	.3119536	-2.57	0.011	-1.415414	-.1884648
radchw3	-.0641173	.0310957	-2.06	0.040	-.1252688	-.0029658
WHPpain	.21312	.0751605	2.84	0.005	.0653127	.3609274
bffpain24	-5.31569	.9930722	-5.35	0.000	-7.268624	-3.362757
bffpain26	-.2349557	.0961657	-2.44	0.015	-.424071	-.0458403
BSIanx	.3524595	.6178581	0.57	0.569	-.8625938	1.567513
HP2probsoc	6.639116	3.844953	1.73	0.085	-.9222049	14.20044
BSIposymp	2.501887	.7092851	3.53	0.000	1.107037	3.896737
BSItotal	-2.168287	.6649841	-3.26	0.001	-3.476016	-.8605573
BSIdep	-.7581339	.567056	-1.34	0.182	-1.873282	.357014
crhtw1	3.307012	1.606036	2.06	0.040	.1486505	6.465373
crhtw2	-1.407417	3.559863	-0.40	0.693	-8.408091	5.593257
crhtw3	2.090788	3.264265	0.64	0.522	-4.328575	8.510152
BFdepx1	.6379949	.1054825	6.05	0.000	.4305576	.8454322
icdx3nr5	10.05342	4.054206	2.48	0.014	2.080598	18.02625
icdx4nr6	20.81846	10.55316	1.97	0.049	.0650634	41.57185
icdx5nr4	50.87478	6.54591	7.77	0.000	38.00187	63.74769
icdx6nr5	58.50618	14.84362	3.94	0.000	29.31535	87.69701
_cons	-11.47416	6.993127	-1.64	0.102	-25.22654	2.278222

```
118 .    di e(r2_a)
    .58224747

119 .
120 .  // residual diagnostics
121 .
122 .  rdiagrbst rFslp1
    (option xb assumed; fitted values)
    (1 missing value generated)
    yvar =  WHPsleep
    age sepaw2 pillw2 radchw3 WHPpain bffpain24 bffpain26 BSIanx HP2probsoc BSIpos
    > ymp BSItotal BSIdep crhtw1 crhtw2 crhtw3 BFdepx1 icdx3nr5 icdx4nr6 icdx5nr4
    > icdx6nr5 _cons
    168
    162
    xvar = ,age sepaw2 pillw2 radchw3 WHPpain bffpain24 bffpain26 BSIanx HP2probso
    > c BSIposymp BSItotal BSIdep crhtw1 crhtw2 crhtw3 BFdepx1 icdx3nr5 icdx4nr6 i
    > cdx5nr4 icdx6nr5
```

	Problems
POuts	**0**
NOuts	**0**
Badouts	**0**
Collin	**0**
SW	**0**
KS	**0**
Spec	**0**
Strbrk	**0**
Coltot	**0**
Pcttot	**0**

Outlier dignostics

Fitted values

	Percentiles	Smallest		
1%	**-10.76906**	**-14.52883**		
5%	**-3.583781**	**-13.27693**		
10%	**-.9605731**	**-13.00432**	Obs	**701**
25%	**6.234726**	**-12.72207**	Sum of Wgt.	**701**

```
50%      17.61371                      Mean           22.91103
                        Largest       Std. Dev.      22.26136
75%      35.87301       95.69287
90%      55.72131       100.8995       Variance       495.5683
95%       67.5869            101       Skewness       .9727678
99%      83.28068       121.0178       Kurtosis       3.693234
(1 missing value generated)
(175 real changes made)
(175 real changes made)
(175 real changes made)
(175 real changes made)
(176 real changes made)
(176 real changes made)
(176 real changes made)
(176 real changes made)

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
    __000001 |       702    .2492877    .4329092          0          1

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
    __000003 |       702    .2492877    .4329092          0          1

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
    __000005 |       702    .2507123    .4337322          0          1

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
    __000007 |       702    .2507123    .4337322          0          1
.18741034
.1881236
Split sample analysis
There are 4 subsamples of equal sample size.

Variance 1 =  .18741034
Variance 2 =  .18741034
Variance 3 =  .1881236
Variance 4 =  .1881236

Minimum variance =  .18741034

Maximum variance =  .1881236

Computing Box's F test as indication of stuctural break:

for segment 1  Box's F =  1
for segment 2  Box's F =  1
```

```
for segment 3  Box's F =  1.0038059
for segment 4  Box's F =  1.0038059

There appears to be no structural break.
```

obs:	rFslp1std
483.	-1.681832
580.	-1.625595
635.	-1.613349
596.	-1.60067
664.	-1.57186

323.	3.114153
335.	3.269424
333.	3.503309
173.	3.507825
55.	4.407042

There are 3 positive outliers

	id	rFslp1~d
55.	465	4.407042
173.	266	3.507825
333.	535	3.503309

There are 38 negative outliers:

	id	rFslp1std
16.	122	-1.409681
113.	304	-1.442372
134.	341	-1.226688
142.	421	-1.253992
185.	514	-1.279927
234.	93	-1.214576
240.	492	-1.201321
241.	269	-1.19017
243.	326	-1.487744
452.	213	-1.265913
465.	671	-1.362111

475.	640	-1.255433
482.	728	-1.478607
483.	673	-1.681832
484.	544	-1.268922
487.	585	-1.191651
490.	670	-1.275334
500.	120	-1.211728
503.	743	-1.455113
504.	428	-1.512939
512.	582	-1.411956
525.	789	-1.442744
531.	693	-1.433851
532.	312	-1.525312
565.	643	-1.552809
570.	506	-1.410424
580.	644	-1.625595
593.	663	-1.256306
596.	638	-1.60067
608.	583	-1.217088
612.	163	-1.296646
635.	314	-1.613349
650.	218	-1.188731
664.	214	-1.57186
669.	318	-1.383579
673.	136	-1.188209
686.	422	-1.417933
691.	90	-1.198765

```
(702 real changes made, 702 to missing)
    3
   38
(4 real changes made)
   42
```

outlier

	Percentiles	Smallest		
1%	0	0		
5%	0	0		
10%	0	0	Obs	702
25%	0	0	Sum of Wgt.	702

```
50%            0                       Mean           .005698
                        Largest        Std. Dev.     .0753234
75%            0              1
90%            0              1        Variance      .0056736
95%            0              1        Skewness      13.13414
99%            0              1        Kurtosis      173.5057
(351 real changes made)
```

__00000N	Freq.	Percent	Cum.
0	351	50.00	50.00
1	351	50.00	100.00
Total	702	100.00	

```
Stem-and-leaf plot for rFslp1std

rFslp1std rounded to nearest multiple of .01
plot in units of .01

 -16* | 8310
 -15* | 7531
 -14* | 9864432111
 -13* | 860
 -12* | 8877665321100
 -11* | 999998666654433333332222111000
 -10* | 999987776654333322211000000
  -9* | 9998666665555444433332221111111111
  -8* | 998888876666655555444332222221111110000
  -7* | 99988877766555444443322221111100000
  -6* | 999998888777777666666555555444444333211110 0
  -5* | 98888777777666544444333322111100
  -4* | 9998877766555444322221111 1
  -3* | 999987777665554444333332110000
  -2* | 99999988876665555444444321111000
  -1* | 9997665444433222222111110
  -0* | 999877776665544443333222
   0* | 00012333355566677 8999
   1* | 0000114455556666788999
   2* | 1122333455556778889999
   3* | 01112223333445667889
   4* | 0112223466799
   5* | 01123444667899
   6* | 00123446778899
   7* | 11112233667789
   8* | 001122234666678
   9* | 000001234567889
  10* | 001334788889
  11* | 012234579
```

```
  12*  | 123457
  13*  | 112333446778
  14*  | 145577
  15*  | 00012236888
  16*  | 145888
  17*  | 17
  18*  | 0002234689
  19*  | 0333
  20*  | 012234
  21*  | 1344579
  22*  | 01556
  23*  | 3569
  24*  | 46
  25*  | 122
  26*  | 1
  27*  | 117
  28*  |
  29*  | 6
  30*  |
  31*  | 1
  32*  | 7
  33*  |
  34*  |
  35*  | 01
  36*  |
  37*  |
  38*  |
  39*  |
  40*  |
  41*  |
  42*  |
  43*  |
  44*  | 1
```

Computing the leverage h

```
                          rFslp1std
-------------------------------------------------------------
      Percentiles      Smallest
 1%    -1.512939      -1.681832
 5%     -1.19017      -1.625595
10%    -1.072334      -1.613349       Obs                 701
25%    -.7491144       -1.60067       Sum of Wgt.         701
```

```
50%    -.2379604                       Mean          -4.00e-10
                        Largest        Std. Dev.             1
75%     .5822632       3.269424
90%     1.473866       3.503309        Variance              1
95%     2.006879       3.507825        Skewness       .9727678
99%     2.711857       4.407042        Kurtosis       3.693234

standard error of snewness=  .09231881
(702 real changes made, 702 to missing)

t test for skewness =  .
badout=  1
Positive outliers are :
```

	id
55.	465
173.	266
333.	535

```
    3
Negative outliers are:
```

	id
16.	122
113.	304
134.	341
142.	421
185.	514
234.	93
240.	492
241.	269
243.	326
452.	213
465.	671
475.	640
482.	728
483.	673
484.	544
487.	585
490.	670
500.	120
503.	743

504.	**428**
512.	**582**
525.	**789**
531.	**693**
532.	**312**
565.	**643**
570.	**506**
580.	**644**
593.	**663**
596.	**638**
608.	**583**
612.	**163**
635.	**314**
650.	**218**
664.	**214**
669.	**318**
673.	**136**
686.	**422**
691.	**90**

38

---

multicollinearity tests:

Variable	VIF	1/VIF
BSIposymp	**346.17**	**0.002889**
BSItotal	**328.92**	**0.003040**
crhtw2	**12.97**	**0.077103**
crhtw3	**10.53**	**0.094985**
BSIanx	**3.74**	**0.267321**
BSIdep	**3.35**	**0.298949**
crhtw1	**2.45**	**0.408345**
WHPpain	**2.16**	**0.463739**
BFdepx1	**2.08**	**0.480554**
HP2probsoc	**1.72**	**0.582832**
age	**1.52**	**0.656437**
radchw3	**1.34**	**0.745517**
pillw2	**1.14**	**0.880010**
icdx3nr5	**1.09**	**0.916738**
icdx5nr4	**1.09**	**0.920349**
icdx4nr6	**1.08**	**0.928874**
bffpain24	**1.07**	**0.934687**
sepaw2	**1.04**	**0.962940**

bffpain26	1.04	0.964867
icdx6nr5	1.03	0.969825
Mean VIF	36.28	

Condition number using scaled variables = 249.04

Condition Indexes and Variance-Decomposition Proportions

condition index	_cons	age	sepaw2	pillw2	radchw3	WHPpain	b
> ffpain24	bffpain26	BSIanx	HP2probsoc	BSIposymp			
1 1.00	0.00	0.00	0.00	0.00	0.00	0.00	
> 0.00	0.00	0.00	0.00	0.00			
2 1.94	0.00	0.00	0.00	0.00	0.00	0.00	
> 0.00	0.00	0.00	0.00	0.00			
3 2.79	0.00	0.00	0.15	0.08	0.00	0.01	
> 0.27	0.09	0.00	0.04	0.00			
4 2.81	0.00	0.00	0.09	0.05	0.00	0.00	
> 0.00	0.22	0.00	0.00	0.00			
5 2.90	0.00	0.00	0.09	0.01	0.00	0.00	
> 0.08	0.02	0.00	0.00	0.00			
6 2.94	0.00	0.00	0.10	0.00	0.00	0.00	
> 0.04	0.00	0.00	0.00	0.00			
7 2.94	0.00	0.00	0.11	0.00	0.00	0.00	
> 0.08	0.00	0.00	0.01	0.00			
8 3.05	0.00	0.00	0.04	0.02	0.00	0.00	
> 0.17	0.16	0.00	0.00	0.00			
9 3.19	0.00	0.00	0.36	0.02	0.00	0.00	
> 0.04	0.41	0.00	0.01	0.00			
10 3.38	0.00	0.00	0.01	0.00	0.01	0.06	
> 0.14	0.06	0.00	0.15	0.00			
11 3.52	0.00	0.00	0.00	0.73	0.00	0.00	
> 0.12	0.00	0.00	0.01	0.00			
12 4.29	0.00	0.00	0.01	0.02	0.00	0.02	
> 0.02	0.01	0.00	0.23	0.00			
13 4.94	0.00	0.00	0.01	0.00	0.05	0.05	
> 0.00	0.00	0.00	0.32	0.00			
14 6.11	0.00	0.00	0.01	0.02	0.00	0.63	
> 0.02	0.01	0.00	0.03	0.00			
15 6.93	0.00	0.00	0.00	0.01	0.61	0.10	
> 0.00	0.01	0.01	0.03	0.00			
16 11.78	0.07	0.23	0.00	0.00	0.23	0.00	
> 0.00	0.00	0.04	0.03	0.00			
17 13.22	0.00	0.00	0.00	0.00	0.00	0.02	
> 0.01	0.00	0.30	0.05	0.00			
18 14.57	0.00	0.00	0.01	0.01	0.00	0.01	
> 0.00	0.00	0.10	0.02	0.00			
19 22.08	0.59	0.65	0.00	0.00	0.05	0.03	

```
>     0.00       0.00       0.19       0.03       0.00
20  24.94       0.33       0.11       0.00       0.01       0.02       0.04
>     0.01       0.00       0.34       0.02       0.00
21 249.04       0.00       0.01       0.00       0.01       0.01       0.02
>     0.00       0.00       0.02       0.00       0.99

condition
    index   BSItotal     BSIdep     crhtw1     crhtw2     crhtw3    BFdepx1
> icdx3nr5   icdx4nr6   icdx5nr4   icdx6nr5
1    1.00       0.00       0.00       0.00       0.00       0.00       0.00
>     0.00       0.00       0.00       0.00
2    1.94       0.00       0.00       0.04       0.01       0.01       0.00
>     0.00       0.00       0.00       0.00
3    2.79       0.00       0.00       0.00       0.00       0.00       0.00
>     0.02       0.03       0.00       0.00
4    2.81       0.00       0.00       0.01       0.00       0.00       0.00
>     0.15       0.19       0.09       0.01
5    2.90       0.00       0.00       0.01       0.00       0.00       0.00
>     0.23       0.00       0.34       0.06
6    2.94       0.00       0.00       0.00       0.00       0.00       0.00
>     0.12       0.19       0.37       0.06
7    2.94       0.00       0.00       0.00       0.00       0.00       0.00
>     0.00       0.00       0.00       0.72
8    3.05       0.00       0.00       0.00       0.00       0.00       0.00
>     0.01       0.45       0.04       0.03
9    3.19       0.00       0.00       0.00       0.00       0.00       0.00
>     0.15       0.02       0.00       0.03
10   3.38       0.00       0.00       0.01       0.00       0.00       0.05
>     0.07       0.00       0.01       0.06
11   3.52       0.00       0.00       0.00       0.00       0.00       0.01
>     0.18       0.01       0.00       0.00
12   4.29       0.00       0.00       0.24       0.01       0.03       0.04
>     0.01       0.01       0.09       0.01
13   4.94       0.00       0.00       0.37       0.00       0.01       0.12
>     0.01       0.04       0.00       0.00
14   6.11       0.00       0.00       0.00       0.00       0.00       0.47
>     0.00       0.02       0.02       0.00
15   6.93       0.00       0.02       0.01       0.00       0.00       0.09
>     0.02       0.00       0.00       0.00
16  11.78       0.00       0.07       0.08       0.00       0.03       0.17
>     0.01       0.01       0.00       0.00
17  13.22       0.00       0.31       0.00       0.16       0.17       0.00
>     0.01       0.00       0.02       0.00
18  14.57       0.00       0.08       0.22       0.80       0.73       0.02
>     0.00       0.00       0.00       0.00
19  22.08       0.00       0.10       0.00       0.00       0.00       0.00
>     0.01       0.01       0.00       0.00
20  24.94       0.01       0.41       0.00       0.00       0.00       0.03
>     0.00       0.01       0.01       0.01
```

```
21 249.04       0.99       0.00       0.00       0.00       0.00       0.00
>     0.01       0.00       0.00       0.00
```

Residual normality tests:

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
rFslp1std	701	0.93253	30.806	8.363	0.00000

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
rFslp1std	701	0.0000	0.0026	71.28	0.0000

```
Jarque-Bera normality test:  124.6 Chi(2)  8.8e-28
Jarque-Bera test for Ho: normality:
(file qnrFslp1std.gph saved)
(file bxrFslp1std.gph saved)
(bin=26, start=-1.6818317, width=.23418745)
(file histrFslp1std.gph saved)
(file kdrFslp1std.gph saved)
(file combi4.gph saved)
```

Specification error tests:

```
Ramsey RESET test using powers of the fitted values of WHPsleep
       Ho:  model has no omitted variables
                 F(3, 338) =      7.41
                  Prob > F =      0.0001
```

Assessment of fulfillment of cross-sectional statistical regression assumption
> s:

```
Caveat: This score is a heuristicc only as these scores are not strictly addit
> ive

Regression model assumption test result matrix
```

	Problems=1
Positive-outliers	**3**
Negative-outliers	**38**
Bad-outliers	**1**
collinearity	**1**
Shapiro-Wilk	**1**
Kolmogorov-Smirnov	**1**
Specification	**1**
StructuralBreak	**0**
TotalProbs	**4**
Percent-Invalid	**80**
Pct-Pseudo-Valid	**20**

```
Problem type total score = Bad-Outliers+collinearity + (SW + KS)/2 + Spec + st
> rbrk
Percent_Valid = 100 - (percent of violated assumptions)
```

```
Legend:
PosOutliers = positive outlier issue
NegOutliers = negative outlier issue
Badoutliers = Number of outliers with bad leverage
collinearity =  Collinearity problem when condition number > 20
SW = Significant Shapiro-Wilk test
KS = Significant Kolmogorov-Smirnov test
Spec = Significant Ramset23 reset test
strbrk = Existence of structural break in residual variance between 4 sample s
> egments
Column total = the total number of counted problems in the column vector
Percent invalid: Percent of 6 regression assumptions violated
Percent Pseudo-Validity =  percent of regression model assumptions not violate
> d
```

```
123 .
124 . regress WHPsleep age sepaw2   pillw2  radchw3 WHPpain bffpain24 bffpain26
    > ///
    >   BSIanx HP2probsoc BSIposymp BSItotal BSIdep crhtw1 crhtw2 crhtw3  ///
    >   BFdepx1 icdx3nr5 icdx4nr6 icdx5nr4 icdx6nr5 ///
    >    if gender==2, vce(cluster id)

Linear regression                                      Number of obs =     362
                                                       F( 19,   361) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.6054
                                                       Root MSE      =  19.996

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

WHPsleep	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
age	.2748115	.1074232	2.56	0.011	.0635576	.4860654
sepaw2	-18.77988	4.034896	-4.65	0.000	-26.71473	-10.84502
pillw2	-.8019393	.3119536	-2.57	0.011	-1.415414	-.1884648
radchw3	-.0641173	.0310957	-2.06	0.040	-.1252688	-.0029658
WHPpain	.21312	.0751605	2.84	0.005	.0653127	.3609274
bffpain24	-5.31569	.9930722	-5.35	0.000	-7.268624	-3.362757
bffpain26	-.2349557	.0961657	-2.44	0.015	-.424071	-.0458403
BSIanx	.3524595	.6178581	0.57	0.569	-.8625938	1.567513
HP2probsoc	6.639116	3.844953	1.73	0.085	-.9222049	14.20044
BSIposymp	2.501887	.7092851	3.53	0.000	1.107037	3.896737
BSItotal	-2.168287	.6649841	-3.26	0.001	-3.476016	-.8605573
BSIdep	-.7581339	.567056	-1.34	0.182	-1.873282	.357014
crhtw1	3.307012	1.606036	2.06	0.040	.1486505	6.465373
crhtw2	-1.407417	3.559863	-0.40	0.693	-8.408091	5.593257
crhtw3	2.090788	3.264265	0.64	0.522	-4.328575	8.510152
BFdepx1	.6379949	.1054825	6.05	0.000	.4305576	.8454322
icdx3nr5	10.05342	4.054206	2.48	0.014	2.080598	18.02625
icdx4nr6	20.81846	10.55316	1.97	0.049	.0650634	41.57185
icdx5nr4	50.87478	6.54591	7.77	0.000	38.00187	63.74769
icdx6nr5	58.50618	14.84362	3.94	0.000	29.31535	87.69701
_cons	-11.47416	6.993127	-1.64	0.102	-25.22654	2.278222

```
125 .    di e(r2_a)
    .58224747

126 .
127 .
128 . // prep for residual and prediction interval analysis
129 .     predict H8FemaleSLpred if gender==2, xb
    (340 missing values generated)

130 .       predict h8FSLsepred if gender==2, stdp
    (341 missing values generated)

131 .      predict FSLrsires if gender==2, residual
    (340 missing values generated)

132 .      gen upbSLF = H8FemaleSLpred + 1.96*h8FSLsepred
    (341 missing values generated)

133 .      gen lpbSLF = H8FemaleSLpred - 1.96*h8FSLsepred
    (341 missing values generated)

134 .  // residual diagnostics
135 .
136 . // prediction interval
137 . scatter H8FemaleSLpred FSLrsires || lowess H8FemaleSLpred  FSLrsires  ///
    >   || lowess upbSLF FSLrsires || lowess lpbSLF FSLrsires, ///
    >   title(Prediction interval of Female Sleep model)   ///
    >   ytitle(Predicted Female Sleep )

138 .
139 . // saving graph
140 . gr save FSLPredInt.gph, replace
    (file FSLPredInt.gph saved)

141 . gr export FSLPredInt.eps, replace
    (file FSLPredInt.eps written in EPS format)
```

```
142 . gr use  FSLPredInt.gph

143 .
144 . title "Moderation effects testing for female sleep owing to significant main
    >  eff"


    ******************************************************************************
    > *
    ******************************************************************************
    > *
    *****                                                                    ****
    > *
    *****                                                                    ****
    > *
    *****Moderation effects testing for female sleep owing to significant main eff
    > *****
    *****                                                                    ****
    > *
    *****                                                                    ****
    > *
    *****                                          13 Jul 2012    12:42:06  ****
    > *
    ******************************************************************************
    > *
    ******************************************************************************
    > *



145 .
146 . foreach varx in age occ5w3 sepaw2   pillw2  radchw3 WHPpain bffpain24 bffpai
    > n26   ///
    >   BSIanx HP2probsoc BSIposymp BSItotal BSIdep WHPpa defnw2  ///
    >   BFdepx1 icdx3nr5 icdx4nr6 icdx4nr10 icdx5nr4 icdx5nr7 icdx6nr5 {
      2.  cap gen `varx'Xcrht1 = `varx'*crhtw1
      3.  cap gen `varx'Xcrht2 = `varx'*crhtw2
      4.  cap gen `varx'Xcrht3 = `varx'*crhtw3
      5.  }
```

```
147 .
148 .  // Full moderation model
149 .  set more off

150 .  regress WHPsleep age sepaw2   pillw2   ///
>   BSIanx HP2probsoc BSIposymp BSItotal BSIdep WHPpain crhtw1 crhtw2 crhtw3 r
> adchw3 ///
>   icdx3nr5 icdx4nr6 icdx5nr4 icdx6nr5   BFdepx1  bffpain24 bffpain26 ///
>    ageXcrht1-BFdepx1Xcrht3 if gender==2, vce(cluster id)

Linear regression                                      Number of obs =     362
                                                       F( 67,   361) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.6719
                                                       Root MSE      =  19.669

                                        (Std. Err. adjusted for 362 clusters in
>  id)
------------------------------------------------------------------------------
> ----
             |               Robust
     WHPsleep |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Inter
> val]
-------------+----------------------------------------------------------------
> ----
         age |   .2190285    .111171     1.97   0.050     .0004043    .437
> 6526
      sepaw2 |  -5.709317    5.82363    -0.98   0.328    -17.16182    5.74
> 3183
      pillw2 |  -.5678966   .2708668    -2.10   0.037    -1.100572   -.035
> 2216
      BSIanx |  -.0851406   .6268447    -0.14   0.892    -1.317866    1.14
> 7585
   HP2probsoc |   1.398479   3.768446     0.37   0.711    -6.012385    8.80
> 9344
    BSIposymp |   3.160442    .760845     4.15   0.000     1.664197    4.65
> 6687
     BSItotal |  -2.664706   .7094479    -3.76   0.000    -4.059876   -1.26
> 9536
      BSIdep |  -1.109565   .5354898    -2.07   0.039    -2.162637    -.05
> 6494
     WHPpain |   .2222525   .0808154     2.75   0.006     .0633243    .381
> 1806
      crhtw1 |  -5.099438   10.93025    -0.47   0.641     -26.5944    16.3
> 9552
      crhtw2 |   21.87027   27.66483     0.79   0.430    -32.53421    76.2
> 7474
      crhtw3 |  -10.85746   23.81684    -0.46   0.649    -57.69462    35.9
> 7971
```

```
        radchw3 |   -.071969   .0359809    -2.00   0.046    -.1427276   -.001
> 2105
       icdx3nr5 |   8.039609   4.995557     1.61   0.108     -1.78444    17.8
> 6366
       icdx4nr6 |   25.53316   11.13154     2.29   0.022     3.642362    47.4
> 2396
       icdx5nr4 |   27.36853   15.63218     1.75   0.081    -3.373048    58.1
> 1011
       icdx6nr5 |   61.37043   17.37651     3.53   0.000     27.19853    95.5
> 4233
        BFdepx1 |   .6307155   .1130835     5.58   0.000     .4083303    .853
> 1008
      bffpain24 |  -2.998509   1.148595    -2.61   0.009    -5.257287   -.739
> 7304
      bffpain26 |  -.3498598   .0866307    -4.04   0.000    -.5202241   -.179
> 4955
      ageXcrht1 |   .3789823   .1747765     2.17   0.031     .0352743    .722
> 6903
      ageXcrht2 |  -.6395828   .5211399    -1.23   0.221    -1.664434    .385
> 2686
      ageXcrht3 |   .4062316   .4534443     0.90   0.371    -.4854925    1.29
> 7956
   occ5w3Xcrht1 |  -24.33741   9.764502    -2.49   0.013    -43.53986   -5.13
> 4961
   occ5w3Xcrht2 |  -1099.873   288.8765    -3.81   0.000    -1667.965   -531.
> 7808
   occ5w3Xcrht3 |   1118.276   296.4648     3.77   0.000     535.2607    1701
> .291
   sepaw2Xcrht1 |  -18.78973   16.03454    -1.17   0.242    -50.32257    12.7
> 4311
   sepaw2Xcrht2 |   -14.1871   20.48524    -0.69   0.489     -54.4725     26.
> 0983
   sepaw2Xcrht3 |   32.49299   19.24809     1.69   0.092    -5.359473    70.3
> 4545
   pillw2Xcrht1 |  -.1430141   .7918204    -0.18   0.857    -1.700174    1.41
> 4146
   pillw2Xcrht2 |  -1.128626   1.691112    -0.67   0.505    -4.454293    2.19
> 7041
   pillw2Xcrht3 |   .3988188   1.017318     0.39   0.695    -1.601795    2.39
> 9432
  radchw3Xcrht1 |  -.0360494   .0613725    -0.59   0.557    -.1567419    .084
> 6432
  radchw3Xcrht2 |  -.0365228   .1193631    -0.31   0.760    -.2712572    .198
> 2116
  radchw3Xcrht3 |   .0473858   .1083439     0.44   0.662    -.1656786    .260
> 4502
  WHPpainXcrht1 |   .0581803   .1544886     0.38   0.707    -.2456304     .36
> 1991
  WHPpainXcrht2 |   .2116283   .4800741     0.44   0.660    -.7324648    1.15
```

```
> 5721
   WHPpainXcrht3 |  -.2994523   .4151106    -0.72   0.471    -1.115791    .516
> 8864
 bffpain24Xcrht1 |  -14.78661     4.9237    -3.00   0.003    -24.46934   -5.10
> 3871
 bffpain24Xcrht2 |    15.1307   8.986859     1.68   0.093    -2.542474    32.8
> 0387
 bffpain24Xcrht3 |  -2.166511   7.050661    -0.31   0.759    -16.03204    11.6
> 9902
 bffpain26Xcrht1 |   .0000238   .1107514     0.00   1.000     -.217775    .217
> 8227
 bffpain26Xcrht2 |  -.2129464   .2902876    -0.73   0.464    -.7838134    .357
> 9207
 bffpain26Xcrht3 |  -.2304548   .2137754    -1.08   0.282    -.6508563    .189
> 9466
    BSIanxXcrht1 |  -.3551488   .6906359    -0.51   0.607    -1.713324    1.00
> 3026
    BSIanxXcrht2 |  -.8744168   2.026639    -0.43   0.666    -4.859918    3.11
> 1084
    BSIanxXcrht3 |   2.481644   1.854216     1.34   0.182    -1.164778    6.12
> 8065
HP2probsocXcrht1 |  -6.556147   6.896054    -0.95   0.342    -20.11763    7.00
> 5336
HP2probsocXcrht2 |   4.356438   17.68665     0.25   0.806    -30.42536    39.1
> 3824
HP2probsocXcrht3 |   8.692857   14.40531     0.60   0.547      -19.636    37.0
> 2172
 BSIposympXcrht1 |   1.023235   .9538997     1.07   0.284    -.8526627    2.89
> 9134
 BSIposympXcrht2 |  -2.210221   3.150975    -0.70   0.483    -8.406793    3.98
> 6352
 BSIposympXcrht3 |   .4204572   2.986033     0.14   0.888    -5.451748    6.29
> 2662
  BSItotalXcrht1 |  -.9182353   .9196814    -1.00   0.319    -2.726841    .890
> 3707
  BSItotalXcrht2 |   1.632888   2.924043     0.56   0.577     -4.11741    7.38
> 3187
  BSItotalXcrht3 |  -.2279941   2.774567    -0.08   0.935    -5.684338     5.2
> 2835
    BSIdepXcrht1 |  -1.123317   .7545822    -1.49   0.137    -2.607246     .36
> 0612
    BSIdepXcrht2 |   4.946507   2.587706     1.91   0.057    -.1423632    10.0
> 3538
    BSIdepXcrht3 |  -3.711385   2.280149    -1.63   0.104    -8.195429    .772
> 6576
     WHPpaXcrht1 |  -.2186439   .1613125    -1.36   0.176    -.5358741    .098
> 5863
     WHPpaXcrht2 |  -.0838338   .5094715    -0.16   0.869    -1.085739     .91
> 8071
```

```
     WHPpaXcrht3 |   .3427543   .4309854     0.80   0.427    -.5048031    1.19
> 0312
    defnw2Xcrht1 |    .040829   .0543161     0.75   0.453    -.0659866    .147
> 6446
    defnw2Xcrht2 |   .0418167   .1315831     0.32   0.751     -.216949    .300
> 5824
    defnw2Xcrht3 |  -.1078665   .1143788    -0.94   0.346     -.332799    .117
> 0661
   BFdepx1Xcrht1 |   .2956623   .1355211     2.18   0.030     .0291525    .562
> 1722
   BFdepx1Xcrht2 |   .3709545   .3133792     1.18   0.237    -.2453235    .987
> 2325
   BFdepx1Xcrht3 |  -.4191597   .3033073    -1.38   0.168    -1.015631    .177
> 3114
           _cons |  -11.08795   8.074243    -1.37   0.171    -26.96641    4.79
> 0511
------------------+----------------------------------------------------------------
> ----

151 .    di e(r2_a)
.59579018

152 .
153 . // Trimmed moderation model
154 . set more off

155 .  regress WHPsleep age sepaw2   pillw2  radchw3 WHPpain bffpain24 bffpain26
>  ///
>   BSIanx HP2probsoc BSIposymp BSItotal BSIdep crhtw1 crhtw2 crhtw3  ///
>   BFdepx1 icdx3nr5 icdx4nr6 icdx5nr4 icdx6nr5 ///
>   occ5w3Xcrht1-occ5w3Xcrht3 pillw2Xcrht2  ///
>   WHPpaXcrht3 icdx4nr10Xcrht1 icdx4nr10Xcrht3 ///
>   icdx5nr7Xcrht1  if gender==2, vce(cluster id)

Linear regression                                      Number of obs =     362
                                                       F( 24,   361) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.6357
                                                       Root MSE      =  19.443
```

```
                                   (Std. Err. adjusted for 362 clusters in
> id)
------------------------------------------------------------------------------
> ----
             |               Robust
     WHPsleep |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interv
> al]
-------------+----------------------------------------------------------------
> ----
         age |   .2219826   .1051277     2.11   0.035     .0152429    .4287
> 223
      sepaw2 |  -17.55504   3.656245    -4.80   0.000    -24.74526   -10.36
> 483
      pillw2 |  -.7379301   .2336624    -3.16   0.002    -1.197441   -.2784
> 196
     radchw3 |   -.062173   .0306266    -2.03   0.043    -.1224019   -.0019
> 442
     WHPpain |   .1937617   .0765877     2.53   0.012     .0431477    .3443
> 757
   bffpain24 |  -4.256477   1.018012    -4.18   0.000    -6.258456   -2.254
> 499
   bffpain26 |  -.1903348   .0920855    -2.07   0.039    -.3714262   -.0092
> 434
      BSIanx |   .3657967   .6135035     0.60   0.551    -.8406929    1.572
> 286
  HP2probsoc |   6.143407    3.83199     1.60   0.110    -1.392421    13.67
> 923
   BSIposymp |   2.312992   .7089218     3.26   0.001     .9188564    3.707
> 127
    BSItotal |  -1.961028   .6650981    -2.95   0.003    -3.268981   -.6530
> 747
      BSIdep |  -.9832378   .5841257    -1.68   0.093    -2.131954    .1654
> 789
      crhtw1 |   3.518823   1.594712     2.21   0.028     .3827302    6.654
> 916
      crhtw2 |  -1.309479   3.472693    -0.38   0.706    -8.138727     5.51
> 977
      crhtw3 |   .5895341   3.174691     0.19   0.853    -5.653677    6.832
> 745
     BFdepx1 |   .6391151   .1023493     6.24   0.000     .4378393    .8403
> 909
    icdx3nr5 |   9.160697   4.197352     2.18   0.030     .9063645    17.41
> 503
    icdx4nr6 |   26.47271   9.599979     2.76   0.006     7.593799    45.35
> 161
    icdx5nr4 |   41.73646   7.238337     5.77   0.000     27.50186    55.97
> 107
    icdx6nr5 |    60.5948    17.3984     3.48   0.001     26.37986    94.80
> 974
```

```
   occ5w3Xcrht1 |  -27.70124   8.854168    -3.13   0.002    -45.11347   -10.28
> 901
   occ5w3Xcrht2 |  -1012.671   298.6315    -3.39   0.001    -1599.947   -425.3
> 953
   occ5w3Xcrht3 |    1033.58   307.8105     3.36   0.001     428.2537    1638.
> 907
   pillw2Xcrht2 |   -.920573   .2508151    -3.67   0.000    -1.413815   -.4273
> 307
    WHPpaXcrht3 |   .1660406   .0551336     3.01   0.003     .0576173    .2744
> 639
icdx4nr10Xcrht1 |  -150.9534    16.4147    -9.20   0.000    -183.2339    -118.
> 673
icdx4nr10Xcrht3 |  -202.0248    15.0301   -13.44   0.000    -231.5823   -172.4
> 672
 icdx5nr7Xcrht1 |   64.20974   14.03834     4.57   0.000     36.60254    91.81
> 694
          _cons |  -10.15555   6.943583    -1.46   0.144     -23.8105    3.499
> 408
----------------+----------------------------------------------------------------
> ---

156 .    di e(r2_a)
.60503813

157 . *-+- possible female moderators of sleep include occ5w3 pillw2 pillw3 defnw2
>  WHPpa
158 . *-+- and icdx4nr10 and icdx5nr7
159 .
160 .
161 . title "tests for possible indirect effects for female sleep model"


*******************************************************************************
> *
*******************************************************************************
> *
*****                                                                      ****
> *
*****                                                                      ****
> *
*****     tests for possible indirect effects for female sleep model      ****
> *
*****                                                                      ****
> *
*****                                                                      ****
> *
*****                                          13 Jul 2012    12:42:06  ****
> *
*******************************************************************************
```

```
> *
*****************************************************************************
> *



162 . set more off

163 . foreach var in  age sepaw2   pillw2  radchw3 WHPpain bffpain24 bffpain26   /
> //
>   BSIanx HP2probsoc BSIposymp BSItotal BSIdep  ///
>   BFdepx1 icdx3nr5 icdx4nr6 icdx5nr4 icdx6nr5 {
  2. sem (crhtw1-> `var')(`var'-> whpsleep) if gender==2, nocapslatent iterate
> (50)
  3. sem (crhtw2-> `var')(`var'-> whpsleep) if gender==2, nocapslatent iterate
> (50)
  4. sem (crhtw3-> `var')(`var'-> whpsleep) if gender==2, nocapslatent iterate
> (50)
  5. }
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  age whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood =  -3614.762
Iteration 1:   log likelihood =  -3614.762

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     =  -3614.762
```

```
------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  age <-     |
       crhtw1 |   3.218873   .6364183     5.06   0.000     1.971516     4.4662
> 3
       _cons |   49.84232   .6063362    82.20   0.000     48.65393    51.0307
> 2
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
         age |   1.000626   .1269109     7.88   0.000     .7518852    1.24936
> 7
       _cons |  -24.01976   6.553885    -3.66   0.000    -36.86514   -11.1743
> 8
-------------+----------------------------------------------------------------
> —
Variance     |
        e.age |     130.49   9.699243                      112.7997    150.954
> 6
   e.whpsleep |   814.5879   60.54784                      704.1556    942.339
> 2
-------------+----------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =      0.93, Prob > chi2 = 0.3346

Endogenous variables

Observed:  age whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3592.6881
Iteration 1:   log likelihood = -3592.6881

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3592.6881
```

```
------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  age <-     |
       crhtw2 |   3.897443   .6851925     5.69   0.000     2.554491    5.24039
> 6
        _cons |   49.54513   .6075589    81.55   0.000     48.35434    50.7359
> 3
-------------+----------------------------------------------------------------
> —
  whpsleep <-|
           age |   .9980208   .1262348     7.91   0.000     .7506051    1.24543
> 6
        _cons |  -23.87083   6.513018    -3.67   0.000    -36.63611   -11.1055
> 5
-------------+----------------------------------------------------------------
> —
Variance     |
        e.age |   128.9608    9.57237                      111.5002    149.155
> 7
   e.whpsleep |   812.4615   60.30655                      702.4585    939.690
> 6
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =      9.45, Prob > chi2 = 0.0021

Endogenous variables

Observed:  age whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3602.2653
Iteration 1:   log likelihood = -3602.2653

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3602.2653
```

```
------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  age <-     |
       crhtw3 |   3.646918   .6723377     5.42   0.000      2.32916    4.96467
> 5
        _cons |   49.58731   .6093473    81.38   0.000     48.39301    50.7816
> 1
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
          age |   .9980208   .1262348     7.91   0.000     .7506051    1.24543
> 6
        _cons |  -23.87083   6.513018    -3.67   0.000    -36.63611   -11.1055
> 5
-------------+----------------------------------------------------------------
> —
Variance     |
        e.age |   129.9244   9.643895                      112.3333    150.270
> 2
   e.whpsleep |   812.4615   60.30655                      702.4585    939.690
> 6
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     13.57, Prob > chi2 = 0.0002
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  sepaw2 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood =  -2063.854
Iteration 1:   log likelihood =  -2063.854
```

```
Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     =  -2063.854

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  sepaw2 <-  |
       crhtw1 |   .0142735   .0081557     1.75   0.080    -.0017115    .030258
> 4
        _cons |   .0201998   .0077702     2.60   0.009     .0049705    .035429
> 2
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
       sepaw2 |  -23.66287   10.97537    -2.16   0.031     -45.1742   -2.15153
> 8
        _cons |   26.80537   1.631586    16.43   0.000     23.60752    30.0032
> 2
-------------+----------------------------------------------------------------
> —
Variance     |
     e.sepaw2 |   .0214297   .0015929                      .0185245    .024790
> 6
   e.whpsleep |   942.3734   70.04606                      814.6174    1090.16
> 5
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =      8.87, Prob > chi2 = 0.0029

Endogenous variables

Observed:  sepaw2 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2040.4802
Iteration 1:   log likelihood = -2040.4802
```

```
Structural equation model                       Number of obs      =        363
Estimation method  = ml
Log likelihood     = -2040.4802

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  sepaw2 <-  |
       crhtw2 |   .0065809   .0088513     0.74   0.457    -.0107673    .023929
> 1
        _cons |   .0209077   .0078484     2.66   0.008     .0055251    .036290
> 3
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
       sepaw2 |  -23.62277   10.96315    -2.15   0.031    -45.11014   -2.13539
> 6
        _cons |   26.76527   1.627522    16.45   0.000     23.57538    29.9551
> 5
-------------+----------------------------------------------------------------
> —
Variance     |
     e.sepaw2 |   .0215201   .0015974                      .0186064    .024890
> 1
   e.whpsleep |    940.334   69.79814                      813.0178    1087.58
> 8
-------------+----------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     24.96, Prob > chi2 = 0.0000

Endogenous variables

Observed:  sepaw2 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2048.5056
Iteration 1:   log likelihood = -2048.5056
```

```
Structural equation model                       Number of obs      =        363
Estimation method  = ml
Log likelihood     = -2048.5056

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  sepaw2 <-  |
       crhtw3 |   .0084506   .0086482     0.98   0.328    -.0084995    .025400
> 7
        _cons |   .0205844   .0078379     2.63   0.009     .0052223    .035946
> 4
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
       sepaw2 |  -23.62277   10.96315    -2.15   0.031    -45.11014   -2.13539
> 6
        _cons |   26.76527   1.627522    16.45   0.000     23.57538    29.9551
> 5
-------------+----------------------------------------------------------------
> —
Variance     |
     e.sepaw2 |   .0214963   .0015956                      .0185858    .024862
> 6
   e.whpsleep |    940.334   69.79814                      813.0178    1087.58
> 8
-------------+----------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     30.30, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  pillw2 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:
```

```
Iteration 0:   log likelihood = -3241.6168
Iteration 1:   log likelihood = -3241.6168

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3241.6168

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  pillw2 <-  |
       crhtw1 |   .2025624   .2097325     0.97   0.334    -.2085058    .613630
> 6
        _cons |   1.591826    .199819     7.97   0.000     1.200188    1.98346
> 4
             +----------------------------------------------------------------
> —
  whpsleep <-|
       pillw2 |   .0227273   .4307801     0.05   0.958    -.8215861    .867040
> 7
        _cons |   26.24564   1.767182    14.85   0.000     22.78203    29.7092
> 5
-------------+----------------------------------------------------------------
> —
Variance     |
     e.pillw2 |   14.17175   1.053378                      12.25051     16.394
> 3
   e.whpsleep |   954.4668   70.94496                      825.0713    1104.15
> 5
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =      7.55, Prob > chi2 = 0.0060

Endogenous variables

Observed:  pillw2 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:
```

```
Iteration 0:   log likelihood = -3219.7581
Iteration 1:   log likelihood = -3219.7581

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3219.7581

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  pillw2 <-  |
       crhtw2 |   .3246167   .2265378     1.43   0.152    -.1193892    .768622
> 6
        _cons |   1.558542   .2008706     7.76   0.000     1.164843    1.95224
> 2
  -----------+----------------------------------------------------------------
> -
  whpsleep <-|
       pillw2 |   .0270174    .430193     0.06   0.950    -.8161454    .870180
> 3
        _cons |   26.20104   1.762341    14.87   0.000     22.74692    29.6551
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
     e.pillw2 |   14.09659   1.046347                      12.18798    16.3040
> 7
   e.whpsleep |   952.3509   70.69012                      823.4077    1101.48
> 6
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     23.82, Prob > chi2 = 0.0000

Endogenous variables

Observed:  pillw2 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:
```

```
Iteration 0:   log likelihood = -3228.4508
Iteration 1:   log likelihood = -3228.4508

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3228.4508

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  pillw2 <-  |
       crhtw3 |   .2342381   .2217468     1.06   0.291    -.2003777     .66885
> 4
        _cons |   1.574017   .2009717     7.83   0.000      1.18012    1.96791
> 4
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
       pillw2 |   .0270174    .430193     0.06   0.950    -.8161454    .870180
> 3
        _cons |   26.20104   1.762341    14.87   0.000     22.74692    29.6551
> 7
-------------+----------------------------------------------------------------
> —
Variance     |
     e.pillw2 |   14.13288   1.049041                      12.21936    16.3460
> 5
   e.whpsleep |   952.3509   70.69012                      823.4077    1101.48
> 6
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =     28.62, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  radchw3 whpsleep

Exogenous variables

Observed:  crhtw1
```

```
Fitting target model:

Iteration 0:   log likelihood = -4034.5067
Iteration 1:   log likelihood = -4034.5067

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -4034.5067

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  radchw3 <- |
       crhtw1 |   8.629612   1.874593     4.60   0.000     4.955477    12.3037
        _cons |   60.22442   1.785986    33.72   0.000     56.72396    63.7248
-------------+----------------------------------------------------------------
  whpsleep <-|
      radchw3 |   .0047655   .0469045     0.10   0.919    -.0871657    .096696
        _cons |   25.98996   3.305045     7.86   0.000     19.51219    32.4677
-------------+----------------------------------------------------------------
Variance     |
    e.radchw3 |   1132.155   84.15244                      978.6709    1309.71
   e.whpsleep |   954.4469   70.94348                      825.0542    1104.13
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      7.85, Prob > chi2 = 0.0051

Endogenous variables

Observed:  radchw3 whpsleep

Exogenous variables

Observed:  crhtw2
```

```
Fitting target model:

Iteration 0:   log likelihood = -3986.9499
Iteration 1:   log likelihood = -3986.9499

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3986.9499

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  radchw3 <- |
       crhtw2 |   17.56613   1.875049     9.37   0.000      13.8911    21.2411
        _cons |   58.46075   1.662602    35.16   0.000     55.20211    61.7193
-------------+----------------------------------------------------------------
  whpsleep <- |
      radchw3 |   .0035358   .0467727     0.08   0.940    -.0881371    .095208
        _cons |   26.02728    3.30036     7.89   0.000     19.55869    32.4958
-------------+----------------------------------------------------------------
Variance     |
    e.radchw3 |   965.7349   71.68357                      834.9796    1116.96
   e.whpsleep |   952.3463   70.68977                      823.4036    1101.48
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     29.28, Prob > chi2 = 0.0000

Endogenous variables

Observed:  radchw3 whpsleep

Exogenous variables

Observed:  crhtw3
```

```
Fitting target model:

Iteration 0:   log likelihood = -3992.8598
Iteration 1:   log likelihood = -3992.8598

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3992.8598

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  radchw3 <- |
       crhtw3 |   17.61708   1.821378     9.67   0.000     14.04725    21.1869
        _cons |   58.44778   1.650736    35.41   0.000      55.2124    61.6831
-------------+----------------------------------------------------------------
  whpsleep <- |
      radchw3 |   .0035358   .0467727     0.08   0.940    -.0881371    .095208
        _cons |   26.02728    3.30036     7.89   0.000     19.55869    32.4958
-------------+----------------------------------------------------------------
Variance     |
    e.radchw3 |   953.4896   70.77464                      824.3922    1102.80
   e.whpsleep |   952.3463   70.68977                      823.4036    1101.48
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     35.81, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  WHPpain whpsleep

Exogenous variables
```

```
Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3818.2147
Iteration 1:   log likelihood = -3818.2147

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3818.2147

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  WHPpain <- |
       crhtw1 |   1.729479   1.239418     1.40   0.163    -.6997351    4.15869
> 4
        _cons |   17.83115   1.180833    15.10   0.000     15.51676    20.1455
> 4
  -----------+----------------------------------------------------------------
> -
  whpsleep <-|
      WHPpain |   .7680828   .0605752    12.68   0.000     .6493576     .88680
> 8
        _cons |   12.40984   1.738609     7.14   0.000     9.002228    15.8174
> 5
-------------+----------------------------------------------------------------
> -
Variance     |
    e.WHPpain |   494.9113   36.78647                      427.817    572.527
> 9
   e.whpsleep |   660.9301   49.12655                      571.329    764.583
> 4
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =      5.62, Prob > chi2 = 0.0177

Endogenous variables

Observed:  WHPpain whpsleep

Exogenous variables
```

```
Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3790.3382
Iteration 1:   log likelihood = -3790.3382

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3790.3382

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  WHPpain <- |
       crhtw2 |   5.721746   1.311307     4.36   0.000     3.151631    8.29186
        _cons |   17.02834   1.162733    14.65   0.000     14.74942    19.3072
-------------+----------------------------------------------------------------
  whpsleep <- |
      WHPpain |   .7680668   .0604372    12.71   0.000     .6496121    .886521
        _cons |   12.41057   1.732256     7.16   0.000     9.015409    15.8057
-------------+----------------------------------------------------------------
Variance     |
    e.WHPpain |   472.3255   35.05929                      408.3752    546.290
   e.whpsleep |   659.1094   48.92369                      569.8695    762.324
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      9.11, Prob > chi2 = 0.0025

Endogenous variables

Observed:  WHPpain whpsleep

Exogenous variables
```

```
Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3795.4294
Iteration 1:   log likelihood = -3795.4294

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3795.4294

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  WHPpain <- |
       crhtw3 |   6.442221   1.270903     5.07   0.000     3.951297    8.93314
        _cons |   16.90299   1.151834    14.67   0.000     14.64544    19.1605
-------------+----------------------------------------------------------------
  whpsleep <- |
      WHPpain |   .7680668   .0604372    12.71   0.000     .6496121    .886521
        _cons |   12.41057   1.732256     7.16   0.000     9.015409    15.8057
-------------+----------------------------------------------------------------
Variance     |
    e.WHPpain |   464.2378   34.45896                      401.3825    536.936
   e.whpsleep |   659.1094   48.92369                      569.8695    762.324
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      9.98, Prob > chi2 = 0.0016
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables

Observed:  bffpain24 whpsleep
```

```
Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2531.1755
Iteration 1:   log likelihood = -2531.1755

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -2531.1755

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  bffpain24 <-
       crhtw1 |  -.0163264   .0295801    -0.55   0.581    -.0743023    .04164
> 95
        _cons |   .0739961   .0281819     2.63   0.009     .0187606    .12923
> 16
-------------+----------------------------------------------------------------
> ---
  whpsleep <-  |
     bffpain24 |  -5.072163   3.045385    -1.67   0.096    -11.04101    .89668
> 22
        _cons |   26.64673   1.632318    16.32   0.000     23.44745    29.846
> 01
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.bffpain24 |    .281897   .0209532                      .2436807    .32610
> 68
    e.whpsleep |   947.2157   70.40599                      818.8033    1095.7
> 67
------------------------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      7.34, Prob > chi2 = 0.0067

Endogenous variables

Observed:  bffpain24 whpsleep
```

```
Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2507.1158
Iteration 1:   log likelihood = -2507.1158

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2507.1158

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  bffpain24 <-
       crhtw2 |  -.0422022   .0319287    -1.32   0.186    -.1047813    .02037
> 69
        _cons |   .0788774   .0283111     2.79   0.005     .0233887    .13436
> 62
  -----------+----------------------------------------------------------------
> ---
  whpsleep <-  |
     bffpain24 |  -5.062292   3.041987    -1.66   0.096    -11.02448    .89989
> 35
        _cons |   26.60724   1.628249    16.34   0.000     23.41594    29.798
> 55
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.bffpain24 |   .2800235   .0207853                      .2421098    .32387
> 43
    e.whpsleep |   945.1506   70.15566                      817.1822    1093.1
> 58
------------------------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =     22.86, Prob > chi2 = 0.0000

Endogenous variables

Observed:  bffpain24 whpsleep
```

```
Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2514.9789
Iteration 1:   log likelihood = -2514.9789

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2514.9789

------------------------------------------------------------------------------
> ------
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-----------------+------------------------------------------------------------
> ------
Structural       |
  bffpain24 <-   |
        crhtw3   |  -.0490766   .0311821    -1.57   0.116    -.1101923    .01203
> 92
         _cons   |   .0800705   .0282607     2.83   0.005     .0246806    .13546
> 04
  ---------------+------------------------------------------------------------
> ------
  whpsleep <-    |
     bffpain24   |  -5.062292   3.041987    -1.66   0.096    -11.02448    .89989
> 35
         _cons   |   26.60724   1.628249    16.34   0.000     23.41594    29.798
> 55
-----------------+------------------------------------------------------------
> ------
Variance         |
   e.bffpain24   |   .2794642   .0207438                      .2416262    .32322
> 74
    e.whpsleep   |   945.1506   70.15566                      817.1822    1093.1
> 58
------------------------------------------------------------------------------
> ------
LR test of model vs. saturated: chi2(1)   =     27.45, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)

Endogenous variables
```

```
Observed:  bffpain26 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3501.2771
Iteration 1:   log likelihood = -3501.2771

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3501.2771

------------------------------------------------------------------------------
> ——
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-----------------+------------------------------------------------------------
> ——
Structural       |
  bffpain26 <-   |
        crhtw1   |  -.1352462   .4308242    -0.31   0.754    -.9796461    .70915
> 38
         _cons   |   1.454464   .4104601     3.54   0.000     .6499767    2.2589
> 51
-----------------+------------------------------------------------------------
> ——
  whpsleep <-    |
     bffpain26   |  -.2864247   .2094129    -1.37   0.171    -.6968663     .1240
> 17
         _cons   |   26.69387   1.647301    16.20   0.000     23.46522    29.922
> 52
-----------------+------------------------------------------------------------
> ——
Variance         |
   e.bffpain26   |   59.79874   4.444806                      51.69193    69.176
> 95
    e.whpsleep   |   949.5669   70.58075                      820.8358    1098.4
> 87
------------------------------------------------------------------------------
> ——
LR test of model vs. saturated: chi2(1)   =      7.46, Prob > chi2 = 0.0063

Endogenous variables
```

```
Observed:  bffpain26 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3480.6721
Iteration 1:   log likelihood = -3480.6721

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3480.6721

------------------------------------------------------------------------------
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-----------------+------------------------------------------------------------
> ---
Structural       |
  bffpain26 <-   |
        crhtw2   |  -.0283059    .466024    -0.06   0.952    -.9416962    .88508
> 43
         _cons   |   1.437371   .4132225     3.48   0.001     .6274697    2.2472
> 72
-----------------+------------------------------------------------------------
> ---
  whpsleep <-    |
     bffpain26   |  -.2854904   .2091748    -1.36   0.172    -.6954654    .12448
> 47
         _cons   |   26.65362   1.643161    16.22   0.000     23.43309    29.874
> 16
-----------------+------------------------------------------------------------
> ---
Variance         |
   e.bffpain26   |   59.65531   4.428032                      51.57829    68.997
> 16
    e.whpsleep   |    947.499   70.32997                      819.2127    1095.8
> 75
-----------------+------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =     23.81, Prob > chi2 = 0.0000

Endogenous variables
```

```
Observed:  bffpain26 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3488.8833
Iteration 1:   log likelihood = -3488.8833

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3488.8833

------------------------------------------------------------------------------
> ——
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-----------------+------------------------------------------------------------
> ——
Structural       |
  bffpain26 <-   |
        crhtw3   |  -.0830469   .4555636    -0.18   0.855    -.9759351    .80984
> 13
         _cons   |   1.446798   .4128824     3.50   0.000      .637563    2.2560
> 32
-----------------+------------------------------------------------------------
> ——
  whpsleep <-    |
     bffpain26   |  -.2854904   .2091748    -1.36   0.172    -.6954654    .12448
> 47
         _cons   |   26.65362   1.643161    16.22   0.000     23.43309    29.874
> 16
-----------------+------------------------------------------------------------
> ——
Variance         |
   e.bffpain26   |   59.65045   4.427672                       51.5741    68.991
> 54
    e.whpsleep   |    947.499   70.32997                      819.2127    1095.8
> 75
------------------------------------------------------------------------------
> ——
LR test of model vs. saturated: chi2(1)   =     28.57, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  BSIanx whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3180.8241
Iteration 1:   log likelihood = -3180.8241

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3180.8241

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSIanx <-  |
       crhtw1 | -.4122699   .2021768    -2.04   0.041    -.8085292   -.016010
       _cons |  9.043819   .1926204    46.95   0.000      8.66629    9.42134
-------------+----------------------------------------------------------------
  whpsleep <-|
       BSIanx |  4.067341   .3901842    10.42   0.000     3.302594    4.83208
       _cons | -10.2787   3.785421    -2.72   0.007    -17.69799   -2.85940
-------------+----------------------------------------------------------------
Variance     |
     e.BSIanx |  13.16905   .9788479                      11.38375    15.2343
   e.whpsleep |  734.1125   54.56615                      634.5901    849.242
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     18.53, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  BSIanx whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3154.7839
Iteration 1:   log likelihood = -3154.7839

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3154.7839

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSIanx <-  |
       crhtw2 |   .8193537   .2160312     3.79   0.000     .3959404    1.24276
       _cons |   8.837162   .1915544    46.13   0.000     8.461723    9.21260
-------------+----------------------------------------------------------------
  whpsleep <-|
       BSIanx |   4.065276   .3890115    10.45   0.000     3.302827    4.82772
       _cons |  -10.25323   3.770224    -2.72   0.007    -17.64274    -2.8637
-------------+----------------------------------------------------------------
Variance     |
     e.BSIanx |   12.81933   .9515401                      11.08366     14.826
   e.whpsleep |   732.1075   54.34211                       632.984    846.753
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     12.41, Prob > chi2 = 0.0004
```

```
Endogenous variables

Observed:  BSIanx whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3158.9796
Iteration 1:   log likelihood = -3158.9796

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3158.9796

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSIanx <-  |
       crhtw3 |   .9985733   .2088589     4.78   0.000     .5892175    1.407929
        _cons |   8.806126   .1892912    46.52   0.000     8.435122     9.17713
-------------+----------------------------------------------------------------
  whpsleep <-|
       BSIanx |   4.065276   .3890115    10.45   0.000     3.302827    4.827724
        _cons |  -10.25323   3.770224    -2.72   0.007    -17.64274    -2.86373
-------------+----------------------------------------------------------------
Variance     |
     e.BSIanx |   12.53781   .9306433                      10.84025    14.50119
   e.whpsleep |   732.1075   54.34211                       632.984    846.7534
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     12.76, Prob > chi2 = 0.0004
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  HP2probsoc whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2384.1366
Iteration 1:   log likelihood = -2384.1366

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -2384.1366

------------------------------------------------------------------------------
> ---
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interv
> al]
-----------------+------------------------------------------------------------
> ---
Structural       |
  HP2probsoc <-  |
         crhtw1  |   .1108202   .0216995     5.11   0.000     .0682899    .1533
> 505
           _cons |    .189671   .0206738     9.17   0.000      .149151    .2301
> 909
  ---------------+------------------------------------------------------------
> ---
  whpsleep <-    |
     HP2probsoc  |   32.64489   3.642603     8.96   0.000     25.50552    39.78
> 426
           _cons |   19.60917   1.646923    11.91   0.000     16.38126    22.83
> 708
-----------------+------------------------------------------------------------
> ---
Variance         |
   e.HP2probsoc  |   .1517024   .0112759                      .1311363    .1754
> 938
     e.whpsleep  |   781.1586   58.06306                      675.2583    903.6
> 672
-----------------+------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      0.52, Prob > chi2 = 0.4705
```

```
Endogenous variables

Observed:  HP2probsoc whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2355.9971
Iteration 1:   log likelihood = -2355.9971

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2355.9971

------------------------------------------------------------------------------
> ---
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interv
> al]
-----------------+------------------------------------------------------------
> ---
Structural       |
  HP2probsoc <-  |
         crhtw2  |   .1387378   .0231912     5.98   0.000     .0932838    .1841
> 918
           _cons |   .1800158   .0205636     8.75   0.000     .1397119    .2203
> 198
-----------------+------------------------------------------------------------
> ---
  whpsleep <-    |
     HP2probsoc  |   32.66925   3.636612     8.98   0.000     25.54162    39.79
> 687
           _cons |   19.58481   1.641949    11.93   0.000     16.36665    22.80
> 297
-----------------+------------------------------------------------------------
> ---
Variance         |
   e.HP2probsoc  |    .147734   .0109658                      .1277316    .1708
> 687
     e.whpsleep  |   779.1427   57.83339                      673.6509    901.1
> 542
-----------------+------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      7.55, Prob > chi2 = 0.0060
```

```
Endogenous variables

Observed:  HP2probsoc whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2364.6787
Iteration 1:   log likelihood = -2364.6787

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2364.6787

------------------------------------------------------------------------------
> ---
                 |                 OIM
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interv
> al]
-----------------+------------------------------------------------------------
> ---
Structural       |
  HP2probsoc <-  |
         crhtw3  |   .1338891   .0227001     5.90   0.000     .0893977    .1783
> 804
           _cons |    .180817   .0205733     8.79   0.000      .140494      .22
> 114
                 -------------------------------------------------------------
> ---
  whpsleep <-    |
     HP2probsoc  |   32.66925   3.636612     8.98   0.000     25.54162    39.79
> 687
           _cons |   19.58481   1.641949    11.93   0.000     16.36665    22.80
> 297
-----------------+------------------------------------------------------------
> ---
Variance         |
   e.HP2probsoc  |   .1481053   .0109934                      .1280527    .1712
> 982
     e.whpsleep  |   779.1427   57.83339                      673.6509    901.1
> 542
-----------------+------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =     10.95, Prob > chi2 = 0.0009
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  BSIposymp whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3894.7465
Iteration 1:   log likelihood = -3894.7465

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3894.7465

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  BSIposymp <-
       crhtw1 |   1.618649   1.561776     1.04   0.300    -1.442375    4.6796
> 73
        _cons |   86.38402   1.487954    58.06   0.000     83.46769    89.300
> 36
  -----------+----------------------------------------------------------------
> ---
  whpsleep <-
    BSIposymp |   .6363545   .0471879    13.49   0.000     .5438679    .72884
> 11
        _cons |  -28.82552   4.295816    -6.71   0.000    -37.24516   -20.405
> 87
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.BSIposymp |    785.831   58.41036                      679.2972    909.07
> 24
    e.whpsleep |   635.3099   47.22221                       549.182    734.94
> 52
-------------+----------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      6.93, Prob > chi2 = 0.0085
```

```
Endogenous variables

Observed:  BSIposymp whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood =  -3858.806
Iteration 1:   log likelihood =  -3858.806

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     =  -3858.806

------------------------------------------------------------------------------
> ---
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interva
> l]
-------------+----------------------------------------------------------------
> ---
Structural   |
  BSIposymp <-
       crhtw2 |   9.803972   1.614914     6.07   0.000     6.638798    12.969
> 15
        _cons |   84.82216   1.431941    59.24   0.000      82.0156    87.628
> 71
-------------+----------------------------------------------------------------
> ---
  whpsleep <-
    BSIposymp |   .6354575   .0470361    13.51   0.000     .5432683    .72764
> 66
        _cons |  -28.72679   4.278099    -6.71   0.000    -37.11171   -20.341
> 87
-------------+----------------------------------------------------------------
> ---
Variance     |
   e.BSIposymp |   716.3602   53.17324                      619.3688    828.54
> 01
    e.whpsleep |   633.7207   47.03916                      547.9183    732.95
> 95
------------------------------------------------------------------------------
> ---
LR test of model vs. saturated: chi2(1)   =      3.48, Prob > chi2 = 0.0620
```

```
Endogenous variables

Observed:  BSIposymp whhpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3861.1852
Iteration 1:   log likelihood = -3861.1852

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3861.1852

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSIposymp <-|
       crhtw3 |   10.97906   1.553505     7.07   0.000     7.934242    14.02387
        _cons |    84.6176   1.407959    60.10   0.000     81.85805    87.37715
-------------+----------------------------------------------------------------
  whhpsleep <-|
   BSIposymp |   .6354575   .0470361    13.51   0.000     .5432683    .7276466
        _cons |  -28.72679   4.278099    -6.71   0.000    -37.11171   -20.34187
-------------+----------------------------------------------------------------
Variance     |
  e.BSIposymp |    693.651   51.48761                      599.7344    802.2748
   e.whhpsleep |   633.7207   47.03916                      547.9183    732.9595
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      3.41, Prob > chi2 = 0.0649
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  BSItotal whhpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3916.5756
Iteration 1:   log likelihood = -3916.5756

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3916.5756

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------------------------------------------------------------------------
Structural    |
  BSItotal <- |
       crhtw1 |   1.656929   1.641141     1.01   0.313    -1.559648    4.87350
        _cons |   91.61374   1.563568    58.59   0.000      88.5492    94.6782
  ------------------------------------------------------------------------------
  whpsleep <- |
     BSItotal |   .5924032   .0453939    13.05   0.000     .5034328    .681373
        _cons |  -28.12047   4.378499    -6.42   0.000    -36.70217   -19.5387
------------------------------------------------------------------------------
Variance      |
   e.BSItotal |    867.728   64.49772                      750.0916    1003.81
   e.whpsleep |   649.0948   48.24684                      561.0982     750.89
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      6.96, Prob > chi2 = 0.0083
```

```
Endogenous variables

Observed:  BSItotal whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3880.7778
Iteration 1:   log likelihood = -3880.7778

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3880.7778

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSItotal <-|
       crhtw2|   10.2622   1.697409     6.05   0.000     6.935335    13.5890
       _cons |   89.97482   1.505089    59.78   0.000      87.0249    92.9247
-------------+----------------------------------------------------------------
  whpsleep <-|
     BSItotal|   .5916426   .0452491    13.08   0.000      .502956    .680329
       _cons |  -28.03162   4.360618    -6.43   0.000    -36.57828   -19.4849
-------------+----------------------------------------------------------------
Variance     |
   e.BSItotal|   791.4173    58.7445                      684.2636     915.35
   e.whpsleep|   647.4379   48.05735                      559.7782    748.824
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      3.82, Prob > chi2 = 0.0506
```

```
Endogenous variables

Observed:  BSItotal whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3883.0889
Iteration 1:   log likelihood = -3883.0889

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3883.0889

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  BSItotal <-|
       crhtw3|   11.51934   1.632556     7.06   0.000     8.319587    14.7190
> 9
       _cons|   89.75604   1.479604    60.66   0.000     86.85606    92.6560
> 1
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     BSItotal|   .5916426   .0452491    13.08   0.000      .502956    .680329
> 1
       _cons|  -28.03162   4.360618    -6.43   0.000    -36.57828   -19.4849
> 7
-------------+----------------------------------------------------------------
> -
Variance     |
   e.BSItotal|   766.0413   56.86092                      662.3234    886.001
> 2
   e.whpsleep|   647.4379   48.05735                      559.7782    748.824
> 8
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =      3.77, Prob > chi2 = 0.0522
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  BSIdep whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3204.3897
Iteration 1:   log likelihood = -3204.3897

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3204.3897

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSIdep <-  |
       crhtw1 |   .3880135   .2084177     1.86   0.063    -.0204776    .796504
        _cons |   9.614106   .1985662    48.42   0.000     9.224923    10.0032
-------------+----------------------------------------------------------------
  whpsleep <-|
       BSIdep |   3.444293   .3922347     8.78   0.000     2.675527    4.21305
        _cons |  -7.009225   4.067821    -1.72   0.085    -14.98201    .963556
-------------+----------------------------------------------------------------
Variance     |
     e.BSIdep |   13.99461   1.040211                      12.09739    16.1893
   e.whpsleep |   786.8643   58.48716                      680.1905    910.267
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      4.71, Prob > chi2 = 0.0299
```

```
Endogenous variables

Observed:  BSIdep whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood =  -3169.858
Iteration 1:   log likelihood =  -3169.858

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     =  -3169.858

------------------------------------------------------------------------------
> —
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> —
Structural   |
  BSIdep <-  |
       crhtw2 |   1.222397   .2175138     5.62   0.000     .7960774    1.64871
> 6
        _cons |   9.445589    .192869    48.97   0.000     9.067572    9.82360
> 5
  -----------+----------------------------------------------------------------
> —
  whpsleep <-|
       BSIdep |   3.445067   .3911827     8.81   0.000     2.678363    4.21177
> 1
        _cons |  -7.019698   4.053191    -1.73   0.083    -14.96381    .924411
> 7
-------------+----------------------------------------------------------------
> —
Variance     |
     e.BSIdep |   12.99589   .9646457                      11.23632    15.0310
> 1
   e.whpsleep |   784.6999   58.24589                      678.4557    907.581
> 6
------------------------------------------------------------------------------
> —
LR test of model vs. saturated: chi2(1)   =      8.55, Prob > chi2 = 0.0035
```

```
Endogenous variables

Observed:  BSIdep whhpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -3173.3492
Iteration 1:   log likelihood = -3173.3492

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3173.3492

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BSIdep <-  |
       crhtw3 |   1.360398   .2098845     6.48   0.000     .9490322    1.77176
        _cons |   9.421549   .1902207    49.53   0.000     9.048723    9.79437
-------------+----------------------------------------------------------------
  whpsleep <-|
       BSIdep |   3.445067   .3911827     8.81   0.000     2.678363    4.21177
        _cons |  -7.019698   4.053191    -1.73   0.083    -14.96381    .924411
-------------+----------------------------------------------------------------
Variance     |
     e.BSIdep |   12.66125   .9398062                      10.94698    14.6439
   e.whpsleep |   784.6999   58.24589                      678.4557    907.581
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      9.76, Prob > chi2 = 0.0018
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  BFdepx1 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -3707.6797
Iteration 1:   log likelihood = -3707.6797

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -3707.6797

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BFdepx1 <- |
       crhtw1 |   .7787754   .9676886     0.80   0.421     -1.11786     2.6754
        _cons |   15.42812   .9219482    16.73   0.000     13.62114    17.2351
-------------+----------------------------------------------------------------
  whpsleep <-|
      BFdepx1 |   1.100099   .0733544    15.00   0.000     .9563268    1.24387
        _cons |   9.195953   1.710066     5.38   0.000     5.844285    12.5476
-------------+----------------------------------------------------------------
Variance     |
    e.BFdepx1 |   301.6915   22.42456                      260.7917    349.005
   e.whpsleep |   588.7085   43.75836                      508.8983    681.035
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      8.20, Prob > chi2 = 0.0042
```

```
Endogenous variables

Observed:  BFdepx1 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -3683.5325
Iteration 1:   log likelihood = -3683.5325

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -3683.5325

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  BFdepx1 <- |
       crhtw2 |   3.186106   1.035232     3.08   0.002     1.157088    5.21512
        _cons |   14.94148   .9179385    16.28   0.000     13.14235     16.740
-------------+----------------------------------------------------------------
  whpsleep <-|
      BFdepx1 |   1.099622   .0731748    15.03   0.000     .9562021    1.24304
        _cons |    9.21263   1.703528     5.41   0.000     5.873776    12.5514
-------------+----------------------------------------------------------------
Variance     |
    e.BFdepx1 |   294.3799   21.85093                      254.5225     340.47
   e.whpsleep |    587.118   43.57998                      507.6253    679.058
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     14.39, Prob > chi2 = 0.0001
```

```
Endogenous variables

Observed:  BFdepx1 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood =   -3688.42
Iteration 1:   log likelihood =   -3688.42

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     =   -3688.42

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  BFdepx1 <- |
       crhtw3 |   4.059266   1.002772     4.05   0.000      2.09387    6.02466
> 2
        _cons |   14.79046   .9088233    16.27   0.000      13.0092    16.5717
> 2
  -----------+----------------------------------------------------------------
> -
  whpsleep <-|
      BFdepx1 |   1.099622   .0731748    15.03   0.000     .9562021    1.24304
> 2
        _cons |    9.21263   1.703528     5.41   0.000     5.873776    12.5514
> 8
-------------+----------------------------------------------------------------
> -
Variance     |
    e.BFdepx1 |   289.0146   21.45268                      249.8836    334.273
> 5
   e.whpsleep |    587.118   43.57998                      507.6253    679.058
> 9
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     13.43, Prob > chi2 = 0.0002
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  icdx3nr5 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2163.9494
Iteration 1:   log likelihood = -2163.9494

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -2163.9494

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx3nr5 <-|
       crhtw1|  -.0070949   .0107359    -0.66   0.509    -.0281368    .013947
       _cons |   .0396183   .0102284     3.87   0.000      .019571    .059665
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx3nr5|   15.56897    8.38152     1.86   0.063    -.8585064    31.9964
       _cons |   25.68032   1.648286    15.58   0.000     22.44974     28.910
-------------+----------------------------------------------------------------
Variance     |
   e.icdx3nr5|   .0371336   .0027601                      .0320994    .042957
   e.whpsleep|   945.4623   70.27566                      817.2876    1093.73
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      7.99, Prob > chi2 = 0.0047
```

```
Endogenous variables

Observed:  icdx3nr5 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2139.3735
Iteration 1:   log likelihood = -2139.3735

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2139.3735

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx3nr5 <-|
       crhtw2|   .0108512   .0116046     0.94   0.350    -.0118935    .033595
       _cons |   .0367028   .0102898     3.57   0.000     .0165352    .056870
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx3nr5|   15.60654   8.371598     1.86   0.062    -.8014958    32.0145
       _cons |   25.64275   1.644065    15.60   0.000     22.42044    28.8650
-------------+----------------------------------------------------------------
Variance     |
   e.icdx3nr5|   .0369909   .0027457                      .0319826    .042783
   e.whpsleep|   943.3299   70.02051                       815.608    1091.05
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     23.09, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx3nr5 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2147.6116
Iteration 1:   log likelihood = -2147.6116

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2147.6116

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx3nr5 <-|
       crhtw3|   .0104594    .011345     0.92   0.357    -.0117764    .032695
       _cons |   .0367676   .0102821     3.58   0.000     .0166151    .056920
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx3nr5|   15.60654   8.371598     1.86   0.062    -.8014958    32.0145
       _cons |   25.64275   1.644065    15.60   0.000     22.42044    28.8650
-------------+----------------------------------------------------------------
Variance     |
   e.icdx3nr5|   .0369934   .0027459                      .0319847    .042786
   e.whpsleep|   943.3299   70.02051                       815.608    1091.05
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     27.90, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  icdx4nr6 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -2041.0853
Iteration 1:   log likelihood = -2041.0853

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -2041.0853

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------------------------------------------------------------------------
Structural    |
  icdx4nr6 <- |
       crhtw1 |  -.0082753   .0076597    -1.08   0.280    -.0232879    .006737
        _cons |   .0204384   .0072976     2.80   0.005     .0061353    .034741
  ------------+-----------------------------------------------------------------
  whpsleep <- |
     icdx4nr6 |   25.54438   11.71493     2.18   0.029     2.583539    48.5052
        _cons |   25.78848    1.62905    15.83   0.000      22.5956    28.9813
------------------------------------------------------------------------------
Variance      |
   e.icdx4nr6 |   .0189022    .001405                      .0163396    .021866
   e.whpsleep |   942.1004   70.02577                      814.3815    1089.84
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      8.38, Prob > chi2 = 0.0038
```

```
Endogenous variables

Observed:  icdx4nr6 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -2016.2402
Iteration 1:   log likelihood = -2016.2402

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2016.2402

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx4nr6 <-|
       crhtw2|   .0099703   .0082811     1.20   0.229    -.0062602    .026200
> 9
       _cons |   .0175704   .0073428     2.39   0.017     .0031788     .03196
> 2
  ---------- +----------------------------------------------------------------
> -
  whpsleep <-|
     icdx4nr6|   25.58151   11.70145     2.19   0.029     2.647084    48.5159
> 3
       _cons |   25.75135   1.624933    15.85   0.000     22.56654    28.9361
> 6
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx4nr6|   .0188367   .0013982                      .0162863    .021786
> 4
   e.whpsleep|   939.9851   69.77224                      812.7161    1087.18
> 4
-------------+----------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     22.75, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx4nr6 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -2024.1593
Iteration 1:   log likelihood = -2024.1593

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -2024.1593

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx4nr6 <-|
       crhtw3|   .0116273   .0080887     1.44   0.151    -.0042262    .027480
        _cons|   .0172829   .0073308     2.36   0.018     .0029147    .031651
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx4nr6|   25.58151   11.70145     2.19   0.029     2.647084    48.5159
        _cons|   25.75135   1.624933    15.85   0.000     22.56654    28.9361
-------------+----------------------------------------------------------------
Variance     |
   e.icdx4nr6|   .0188048   .0013958                      .0162588    .021749
   e.whpsleep|   939.9851   69.77224                      812.7161    1087.18
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     27.27, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  icdx5nr4 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -1691.0498
Iteration 1:   log likelihood = -1691.0498

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -1691.0498

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------------------------------------------------------------------------
Structural    |
  icdx5nr4 <- |
        crhtw1 | -.0038018   .0029173    -1.30   0.193    -.0095196     .00191
         _cons |  .0032684   .0027794     1.18   0.240    -.0021791     .00871
  -------------+----------------------------------------------------------------
  whpsleep <- |
      icdx5nr4 |  74.92454   30.68568     2.44   0.015     14.78172    135.067
         _cons |  26.07546   1.612803    16.17   0.000     22.91442    29.2364
-------------+----------------------------------------------------------------
Variance      |
   e.icdx5nr4 |  .0027419   .0002038                      .0023702     .00317
   e.whpsleep |  939.0095   69.79603                      811.7096    1086.27
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      8.68, Prob > chi2 = 0.0032
```

```
Endogenous variables

Observed:  icdx5nr4 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -1665.5852
Iteration 1:   log likelihood = -1665.5852

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -1665.5852

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx5nr4 <-|
       crhtw2|   .0035669    .003157     1.13   0.259    -.0026206    .009754
> 4
       _cons |   .0021419   .0027993     0.77   0.444    -.0033446    .007628
> 3
  ---------- +----------------------------------------------------------------
> -
  whpsleep <-|
     icdx5nr4|   74.96185   30.65146     2.45   0.014     14.88609    135.037
> 6
       _cons |   26.03815   1.608784    16.18   0.000     22.88499    29.1913
> 1
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx5nr4|   .0027376   .0002032                      .0023669    .003166
> 3
   e.whpsleep|   936.9238   69.54501                      810.0693    1083.64
> 3
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     22.75, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx5nr4 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -1673.8799
Iteration 1:   log likelihood = -1673.8799

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -1673.8799

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx5nr4 <-|
       crhtw3|    .003294   .0030868     1.07   0.286    -.0027561     .00934
        _cons|    .002188   .0027976     0.78   0.434    -.0032952    .007671
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx5nr4|   74.96185   30.65146     2.45   0.014     14.88609    135.037
        _cons|   26.03815   1.608784    16.18   0.000     22.88499    29.1913
-------------+----------------------------------------------------------------
Variance     |
   e.icdx5nr4|   .0027386   .0002033                      .0023678    .003167
   e.whpsleep|   936.9238   69.54501                      810.0693    1083.64
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     27.60, Prob > chi2 = 0.0000
(1 observations with missing values excluded;
 specify option 'method(mlmv)' to use all observations)
```

```
Endogenous variables

Observed:  icdx6nr5 whpsleep

Exogenous variables

Observed:  crhtw1

Fitting target model:

Iteration 0:   log likelihood = -1813.8018
Iteration 1:   log likelihood = -1813.8018

Structural equation model                       Number of obs      =       362
Estimation method  = ml
Log likelihood     = -1813.8018

------------------------------------------------------------------------------
              |                 OIM
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------------------------------------------------------------------------
Structural    |
  icdx6nr5 <- |
        crhtw1 | -.0010146   .0041293    -0.25   0.806    -.0091079    .007078
         _cons |  .0056599   .0039341     1.44   0.150    -.0020508    .013370
              |------------------------------------------------------------------
  whpsleep <- |
     icdx6nr5 |  75.13267    21.5475     3.49   0.000     32.90035     117.36
         _cons |  25.86733   1.601613    16.15   0.000     22.72823    29.0064
              |------------------------------------------------------------------
Variance      |
   e.icdx6nr5 |  .0054934   .0004083                      .0047487     .00635
   e.whpsleep |   923.459   68.64017                      798.2673    1068.28
              |------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =      8.06, Prob > chi2 = 0.0045
```

```
Endogenous variables

Observed:  icdx6nr5 whpsleep

Exogenous variables

Observed:  crhtw2

Fitting target model:

Iteration 0:   log likelihood = -1788.1372
Iteration 1:   log likelihood = -1788.1372

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -1788.1372

------------------------------------------------------------------------------
> -
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval
> ]
-------------+----------------------------------------------------------------
> -
Structural   |
  icdx6nr5 <-|
       crhtw2|   -.003772   .0044619    -0.85   0.398    -.0125171    .004973
> 2
       _cons|   .0061578   .0039563     1.56   0.120    -.0015965    .013912
> 1
  ---------+----------------------------------------------------------------
> -
  whpsleep <-|
     icdx6nr5|    75.1695   21.52331     3.49   0.000     32.98459    117.354
> 4
       _cons|    25.8305    1.59761    16.17   0.000     22.69924    28.9617
> 6
-------------+----------------------------------------------------------------
> -
Variance     |
   e.icdx6nr5|   .0054685   .0004059                      .0047281    .006324
> 9
   e.whpsleep|   921.4008   68.39278                       796.648     1065.6
> 9
------------------------------------------------------------------------------
> -
LR test of model vs. saturated: chi2(1)   =     26.25, Prob > chi2 = 0.0000
```

```
Endogenous variables

Observed:  icdx6nr5 whpsleep

Exogenous variables

Observed:  crhtw3

Fitting target model:

Iteration 0:   log likelihood = -1796.2697
Iteration 1:   log likelihood = -1796.2697

Structural equation model                       Number of obs      =       363
Estimation method  = ml
Log likelihood     = -1796.2697

------------------------------------------------------------------------------
             |                 OIM
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Structural   |
  icdx6nr5 <-|
       crhtw3| -.0041419   .0043608    -0.95   0.342    -.0126888    .004405
       _cons |  .0062224   .0039522     1.57   0.115    -.0015239    .013968
-------------+----------------------------------------------------------------
  whpsleep <-|
     icdx6nr5|   75.1695   21.52331     3.49   0.000     32.98459    117.354
       _cons |   25.8305    1.59761    16.17   0.000     22.69924    28.9617
-------------+----------------------------------------------------------------
Variance     |
   e.icdx6nr5|  .0054657   .0004057                      .0047257    .006321
   e.whpsleep| 921.4008   68.39278                       796.648     1065.6
------------------------------------------------------------------------------
LR test of model vs. saturated: chi2(1)   =     31.69, Prob > chi2 = 0.0000
```

```
164 .
165 . des BFdepx1 BSIdep BSItotal BSIposymp HP2probsoc BSIanx WHPpain age

                 storage  display     value
    variable name   type   format      label      variable label
    ------------------------------------------------------------------------------
    BFdepx1         float  %9.0g                   max(0, WHPer + 3.14933e-007)
    BSIdep          double %9.0g                  Basic symptom inventory
                                                    Depression subscale
    BSItotal        double %9.0g                  Basic symptom inventory total
                                                    scale score
    BSIposymp       double %9.0g                  Brief Symptom inventory positive
                                                    symptom total subscale
    HP2probsoc      double %9.0g       hp2fmt     Hlth profile Pt2: Hlth causing
                                                    probs with social life
    BSIanx          double %9.0g                  Basic symptom inventory Anxiety
                                                    subscale
    WHPpain         double %9.0g                  Wtd Health Profile Pain Pt 1
                                                    subscale
    age             double %8.0g                * Respondent's age

166 .
167 . * Possible female sleep indirect effects ----------------------------------
    > -----
168 . *-+- Possible female indirect effects through
169 . * wave 1 HP2probsoc BSIanx age
170 . * wave 2 BFdepx1 BSIdep BSItotal BSIposymp HP2probsoc BSIanx WHPpain age
171 . * wave 3 BFdepx1 BSIdep BSItotal BSIposymp HP2probsoc BSIanx WHPpain age
172 . *-----------------------------------------------------------------------------
    > ---
173 .
174 .
175 .
176 . *-+- Wave one chornobyl related health threat and female sleep relationship
177 .
```