

```

1      *** C03S3D1 ***;
2      ****;
3      *** The data set insulin shows data from nondiabetic patients originally ***;
4      *** reported in Reaven and Miller (1979) and discussed in Rencher (1995).***;
5      *** The following three predictor variables were measured: ***;
6      ***   glucose = glucose intolerance ***;
7      ***   insulin = insulin response to oral glucose ***;
8      ***   resist  = insulin resistance ***;
9      *** These following responses were also measured: ***;
10     ***   weight  = relative weight ***;
11     ***   fasting = fasting plasma glucose ***;
12     *** Use the example data to determine whether glucose intolerance, ***;
13     *** insulin response, and insulin resistance predict weight and fasting ***;
14     *** glucose using multivariate multiple ***;
15     ****;
16     dm "output;clear;log;clear";
17     options ps=256 ls=99 nocenter nodate nonumber nolabel;
18
19     ods html style=minimal File='C:\EXST7037\Cancorr\C03S3D1.html';
NOTE: Writing HTML Body file: C:\EXST7037\Cancorr\C03S3D1.html
20     Title1 "Analysis of insulin shows data from nondiabetic patients.";
21
22     Libname amul "C:\EXST7037\Cancorr";
NOTE: Libref AMUL was successfully assigned as follows:
      Engine:          V9
      Physical Name:  C:\EXST7037\Cancorr
23
24     proc reg data = amul.insulin ;
25     model Weight Fasting = Glucose Insulin Resist / noprint ;
26     mtest / print canprint ;
27     title 'canonical analysis of insulin data' ;
28     run;
8      !      quit;
NOTE: The PROCEDURE REG printed page 1.
NOTE: PROCEDURE REG used (Total process time):
      real time          0.17 seconds
      cpu time           0.09 seconds

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Canonical analysis of insulin data

The REG Procedure
Model: MODEL1
Multivariate Test 1

Error Matrix (E)

0.5400626855	9.0162268852
9.0162268852	3123.4273529

Hypothesis Matrix (H)

0.1881199232	0.7050774626
0.7050774626	51.724820999

	Canonical Correlation	Adjusted Canonical Correlation	Approximate Standard Error	Squared Canonical Correlation
1	0.514205	0.469242	0.109656	0.264407
2	0.125488	0.047831	0.146724	0.015747

Test of H0: The canonical correlations in the current row and all that follow are zero
Eigenvalues of $\text{Inv}(E) * H = \text{CanRs} / (1 - \text{CanRs})$

	Eigenvalue	Difference	Proportion	Cumulative	Ratio	F Value	Num DF	Den DF	Pr > F
1	0.3594	0.3434	0.9574	0.9574	0.72400963	2.39	6	82	0.0350
2	0.0160		0.0426	1.0000	0.98425273	0.34	2	42	0.7165

Multivariate Statistics and F Approximations

Statistic	S=2 M=0 N=19.5			Num DF	Den DF	Pr > F
	Value	F Value				
Wilks' Lambda	0.72400963	2.39		6	82	0.0350
Pillai's Trace	0.28015406	2.28		6	84	0.0435
Hotelling-Lawley Trace	0.37544623	2.54		6	52.926	0.0312
Roy's Greatest Root	0.35944702	5.03		3	42	0.0045

NOTE: F Statistic for Roy's Greatest Root is an upper bound.

NOTE: F Statistic for Wilks' Lambda is exact.

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1      *** CH03S3D2 ***;
2      ****
3      *** The following example uses the gamble data set, which is composed of ***;
4      *** data from two instruments that address pathological gambling: ***;
5      *** The first instrument is a 12-item measure developed by Edward Johnson ***;
6      *** that is based on the ten DSM-IV diagnostic criteria for pathological ***;
7      *** gambling. These items are named dsm1-dsm12. ***;
8      *** The second instrument is a 20-item questionnaire developed and used ***;
9      *** by Gamblers Anonymous (GA) to help prospective members decide ***;
10     *** whether they need help. These items are named gal-ga20. ***;
11     ****
12     dm "output;clear;log;clear";
13     options ps=256 ls=99 nocenter nodate nonumber nolabel;
14
15     ods html style=minimal File='C:\EXST7037\Cancorr\CH03S3D2.html';
NOTE: Writing HTML Body file: C:\EXST7037\Cancorr\CH03S3D2.html
16     Title1 "Analysis of two instruments that address pathological gambling.";
17     Libname amul "C:\EXST7037\Cancorr";
NOTE: Libref AMUL was successfully assigned as follows:
      Engine:          V9
      Physical Name: C:\EXST7037\Cancorr
18
19     data gamble; set amul.gamble;
20     label dsm1 = 'Wished stop thkg re gambling'
21           dsm2 = 'Wished stop thkg re get money'
22           dsm3 = 'Felt need to bet more and more'
23           dsm4 = 'Rely on others for funds'
24           dsm5 = 'Gamble to escape'
25           dsm6 = 'Lie about how much I gamble'
26           dsm7 = 'Relaxing difficult if not gambling'
27           dsm8 = 'Win back money next day'
28           dsm9 = 'Felt I should cut back on gambling'
29           dsm10 = 'Illegal acts to pay for gambling'
30           dsm11 = 'Danger of losing relationship'
31           dsm12 = 'Danger of losing job'
32           ga1 = 'Lost time from work from gambling'
33           ga2 = 'Gambling made home life unhappy'
34           ga3 = 'Gambling affected reputation'
35           ga4 = 'Felt remorse after gambling'
36           ga5 = 'Gamble to get money for debts'
37           ga6 = 'Caused decreased ambition/efficiency'
38           ga7 = 'Felt must return win back losses'
39           ga8 = 'After win want to return win more'
40           ga9 = 'Gambled until last dollar gone'
41           ga10 = 'Borrowed to finance gambling'

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42          ga11 = 'Sold things to finance gambling'
43          ga12 = 'Kept gambling money for gambling'
44          ga13 = 'Gambling->Careless of self/family'
45          ga14 = 'Gambled longer than planned'
46          ga15 = 'Gambled to escape worry/trouble'
47          ga16 = 'Illegal act to finance gambling';
48      run;
NOTE: There were 100 observations read from the data set AMUL.GAMBLE.
NOTE: The data set WORK.GAMBLE has 100 observations and 33 variables.
NOTE: DATA statement used (Total process time):
      real time          0.01 seconds
      cpu time           0.01 seconds

49
50      title;
51      *Part One;
52      proc cancorr data = amul.gamble
53          vprefix=DSM_ wprefix=GANON
54          vname='DSM IV Questions' wname= 'GA Questions'
55          outstat=out;
56      var DSM1 - DSM12;
57      with GA1 - GA20;
58      run;
NOTE: The data set WORK.OUT has 108 observations and 34 variables.
NOTE: The PROCEDURE CANCECORR printed pages 1-4.
NOTE: PROCEDURE CANCECORR used (Total process time):
      real time          0.23 seconds
      cpu time           0.17 seconds

59
60
61      *Part Two;
62      /* In the following run of PROC CANCECORR:
63      Use data = out (the outstat data set) to reduce processing time if you
64      do not wish to save canonical scores.
65      Use data = amul.gamble (the original data) to save out canonical scores.
66      */
66      proc cancorr data = amul.gamble out = gambleout
67          vprefix=DSM_ wprefix=GANON
68          vname='DSM IV Questions' wname= 'GA Questions'
69          NCAN= 4;
70      var DSM1 - DSM12;
71      with GA1 - GA20;
72      run;
NOTE: The data set WORK.GAMBLEOUT has 100 observations and 41 variables.
NOTE: The PROCEDURE CANCECORR printed pages 5-8.
NOTE: PROCEDURE CANCECORR used (Total process time):
      real time          0.07 seconds
      cpu time           0.04 seconds
```

The CANCERR Procedure

Canonical Correlation Analysis

	Canonical Correlation	Adjusted Canonical Correlation	Approximate Standard Error	Squared Canonical Correlation
1	0.962614	.	0.007374	0.926626
2	0.960537	.	0.007776	0.922632
3	0.919915	0.898030	0.015453	0.846243
4	0.879398	0.853706	0.022780	0.773342
5	0.646751	0.526991	0.058464	0.418287
6	0.537904	0.361773	0.071424	0.289341
7	0.481877	0.340526	0.077166	0.232205
8	0.413793	0.264289	0.083295	0.171225
9	0.344847	0.176842	0.088552	0.118919
10	0.288702	0.143077	0.092127	0.083349
11	0.240184	.	0.094706	0.057688
12	0.142172	-.047693	0.098472	0.020213

Test of H0: The canonical correlations in the current row and all that follow are zero
 Eigenvalues of $\text{Inv}(E)*H = \text{CanRs}q/(1-\text{CanRs}q)$

	Eigenvalue	Difference	Proportion	Cumulative	Likelihood Ratio	Approximate F Value	Num DF	Den DF	Pr > F
1	12.6288	0.7036	0.3566	0.3566	0.00003881	5.11	240	733.82	<.0001
2	11.9252	6.4214	0.3367	0.6934	0.00052889	3.94	209	685.94	<.0001
3	5.5038	2.0919	0.1554	0.8488	0.00683603	2.70	180	636.43	<.0001
4	3.4119	2.6929	0.0963	0.9451	0.04446007	1.82	153	585.14	<.0001
5	0.7191	0.3119	0.0203	0.9654	0.19615457	1.05	128	531.92	0.3439
6	0.4071	0.1047	0.0115	0.9769	0.33720152	0.84	105	476.57	0.8616
7	0.3024	0.0958	0.0085	0.9855	0.47449117	0.71	84	418.83	0.9701
8	0.2066	0.0716	0.0058	0.9913	0.61799210	0.59	65	358.38	0.9945
9	0.1350	0.0440	0.0038	0.9951	0.74566905	0.49	48	294.8	0.9984
10	0.0909	0.0297	0.0026	0.9977	0.84631196	0.40	33	227.56	0.9987
11	0.0612	0.0406	0.0017	0.9994	0.92326486	0.32	20	156	0.9978
12	0.0206		0.0006	1.0000	0.97978707	0.18	9	79	0.9955

The CANCERR Procedure

Multivariate Statistics and F Approximations

	S=12	M=3.5	N=33			
Statistic	Value	F Value	Num DF	Den DF	Pr > F	
Wilks' Lambda	0.00003881	5.11	240	733.82	<.0001	
Pillai's Trace	4.86006930	2.69	240	948	<.0001	
Hotelling-Lawley Trace	35.41268652	9.78	240	432.8	<.0001	
Roy's Greatest Root	12.62882079	49.88	20	79	<.0001	

NOTE: F Statistic for Roy's Greatest Root is an upper bound.

Canonical Correlation Analysis

Raw Canonical Coefficients for the DSM IV Questions

	DSM_1	DSM_2	DSM_3	DSM_4	DSM_5	DSM_6
dsm1	-0.019030685	0.2756589102	0.0939524749	0.0061162719	0.1641914804	-0.553329247
dsm2	-0.056085222	0.0787612179	-0.067073173	0.0113329715	0.550504462	-0.090336994
dsm3	0.0790559655	0.2252761886	-0.02092713	-0.033524979	-0.036150065	0.2546597391
dsm4	0.1409152923	0.0038580379	-0.031310195	0.1486062701	-0.733543995	-0.456102572
dsm5	-0.004730208	0.0350263124	0.4078675756	-0.117284776	-0.47618467	-0.248782162
dsm6	0.0718164023	-0.005542748	0.1836046976	0.3846353209	0.0537032213	-0.099444991
dsm7	0.079149438	0.0423533029	0.2535107433	-0.211010517	0.3718486533	0.2784353741
dsm8	0.0483319327	-0.012841984	-0.023550553	-0.182301315	0.8507770448	-0.38779177
dsm9	-0.127742885	0.1792410773	0.0069166011	0.0525997782	-0.553115303	0.508304342
dsm10	0.1591676895	-0.063723003	-0.097515357	-0.142833599	0.2380657403	0.7967377587
dsm11	0.1126089216	0.0505784137	0.1297497858	0.3381711149	-0.089562694	0.1274500737
dsm12	0.3149449851	0.1828610161	-0.153339462	-0.006479408	-0.310047993	0.0533364238

Raw Canonical Coefficients for the DSM IV Questions

	DSM_7	DSM_8	DSM_9	DSM_10	DSM_11	DSM_12
dsm1	-1.051068626	-0.873050193	0.0611876439	0.2296438034	0.0184767485	0.1795786878
dsm2	0.746591928	0.0646989225	-0.139607054	-0.932457107	-0.23434316	-0.318114562
dsm3	-0.091152985	0.1267500769	-0.042323795	0.4476751684	1.0427362944	-0.220174133
dsm4	0.774910972	-0.574701186	-0.202564051	-0.002986282	0.1075350244	0.0542117801
dsm5	-0.359833002	-0.068745955	-0.265365019	0.0426559461	-0.368267541	-0.874619798
dsm6	-0.017523136	0.0584013723	0.7180636254	-0.080792069	0.0004618944	-0.34474694
dsm7	0.4436607945	0.0015446009	0.3066021303	-0.039757596	0.2793900664	0.9234513905
dsm8	0.1037845877	0.5505644816	-0.004647988	0.5609489842	-0.148852586	-0.145651247
dsm9	0.470687841	0.6428851303	0.082633088	0.3099886233	-0.793321517	0.3815635325
dsm10	-0.076437846	-0.836133188	0.0786917697	0.1270124108	-0.220381401	-0.355346037
dsm11	-0.232445651	0.0436790627	-0.757595348	0.1257390688	0.1110330914	0.3186425881
dsm12	-0.528729777	0.9235029069	0.0867063667	-0.687606887	-0.008610359	0.4413507747

Raw Canonical Coefficients for the GA Questions

	GANON1	GANON2	GANON3	GANON4	GANON5	GANON6
ga1	0.1289027984	0.1025146632	-0.024866608	-0.005543584	0.0817030455	0.0719815007
ga2	0.1141286434	0.0096193826	0.11259154	0.3420087591	-0.181526156	-0.210752776
ga3	0.1698850187	-0.017912455	-0.158415582	0.0908858544	0.1724712476	0.2393675988
ga4	-0.061036359	0.0082649649	-0.057567062	0.0728796418	0.0810442947	0.3202290116
ga5	-0.002716073	0.0630496384	0.0575728602	0.0386339505	0.0176695181	0.286222806
ga6	0.0422525957	0.0791789656	0.0020756753	-0.168791546	0.242345926	0.0493693054
ga7	0.0111485104	0.2339181432	-0.082227568	0.0739123855	-0.172720727	0.4273170595
ga8	0.0074507584	0.0918367518	0.0272955733	-0.082029193	0.3366460913	0.0564507295
ga9	0.1026553131	0.0435146993	0.0451815199	0.0533232504	-0.29301893	-0.046082572
ga10	0.0787260423	-0.016628417	0.0029064178	-0.03597321	-0.149069783	-0.628719515
ga11	0.0951093208	-0.013377216	-0.053420707	-0.063093999	-0.43606651	-0.217242139
ga12	-0.138230784	0.0331105183	0.1046737837	0.0953955338	0.536708856	-1.049339763
ga13	0.0536268083	0.0198836778	0.1773550774	0.3205193049	0.2480263049	0.2283525002
ga14	-0.06093634	-0.081535689	0.0275494336	-0.176910105	0.7415992212	0.2608413952
ga15	0.1125395051	0.0155942581	0.2361827569	-0.042440763	-0.016547041	0.1614940617
ga16	0.080862236	0.2053711545	0.043824775	-0.108694565	-0.376884836	0.2658212307
ga17	0.1772324524	0.0440151352	-0.11903873	0.1098871312	-0.347047953	0.1800930287
ga18	-0.030240192	-0.013615616	0.2658414299	-0.227627737	0.2169824987	-0.40869624
ga19	-0.004683877	0.0258554303	0.1235198035	-0.071723719	-0.28102822	-0.129977945
ga20	0.0013942744	0.2047179444	-0.008099656	0.0288553761	-0.412872627	-0.077523362

Raw Canonical Coefficients for the GA Questions

	GANON7	GANON8	GANON9	GANON10	GANON11	GANON12
ga1	-0.035170025	0.3734385196	-0.558656194	0.307579116	0.106527478	-0.030429273
ga2	0.3437725369	0.0294199834	0.044440578	-0.100554708	0.4626877833	-0.162960083
ga3	-0.148138558	-0.494905361	-0.210510701	-0.1531195	0.2073819824	-0.468781753
ga4	0.2601484248	-0.283083761	0.3768314524	0.1416058682	-0.451064475	0.5364639039
ga5	-0.038240476	0.2146997353	-0.52733778	-0.05411214	-0.350206854	0.2218573488
ga6	-0.385697891	0.5038448575	0.742765665	-0.026989686	0.0294494772	-0.070710838
ga7	-0.291638939	-0.230805954	-0.055442341	-0.031212933	0.284773501	0.0531232192
ga8	0.0698876803	0.6421354577	-0.535947534	-0.372541414	0.0728755661	0.1928240417
ga9	0.0624364751	-0.670778339	-0.096378508	-0.731356049	-0.147298309	0.941479612
ga10	0.1117629383	0.2621574696	-0.185500781	0.2498120169	0.0455244884	-0.050450352
ga11	-0.128341901	0.1498185403	0.3368663731	0.0185013758	-0.371541558	-0.059532355
ga12	-0.505336569	-0.358354685	-0.111747745	0.1969716759	-0.107487287	-0.394098918
ga13	-0.336277044	0.0416217898	0.0661714318	0.2093030877	-0.349964711	0.1893796855
ga14	0.9786540436	-0.027877579	0.1950193052	0.2792442392	-0.342031646	0.1587701181
ga15	-0.557529423	-0.182023725	0.1777542481	0.1024512448	0.1769633466	-0.806705376
ga16	-0.080799742	-0.173319017	0.1071334543	0.6852588827	0.9646353176	0.3054091913
ga17	-0.372590859	-0.083038024	-0.246339381	0.1265106731	0.4961360512	-0.489081985
ga18	0.1577534998	0.1049028016	0.2268574643	-0.531454856	0.2967150687	0.6814853086
ga19	0.3678631325	-0.176357321	-0.004717035	0.4291030739	-0.101364358	-0.329055763
ga20	0.496537849	0.328292183	0.2412091327	-0.64172508	-0.158934476	-0.658327328

Canonical Correlation Analysis

Standardized Canonical Coefficients for the DSM IV Questions

	DSM_1	DSM_2	DSM_3	DSM_4	DSM_5	DSM_6
dsm1	-0.0270	0.3918	0.1335	0.0087	0.2334	-0.7865
dsm2	-0.0797	0.1119	-0.0953	0.0161	0.7825	-0.1284
dsm3	0.1124	0.3202	-0.0297	-0.0477	-0.0514	0.3620
dsm4	0.2003	0.0055	-0.0445	0.2112	-1.0426	-0.6483
dsm5	-0.0067	0.0498	0.5797	-0.1667	-0.6768	-0.3536
dsm6	0.1021	-0.0079	0.2610	0.5467	0.0763	-0.1413
dsm7	0.1125	0.0602	0.3603	-0.2999	0.5285	0.3958
dsm8	0.0687	-0.0183	-0.0335	-0.2591	1.2092	-0.5512
dsm9	-0.1816	0.2548	0.0098	0.0748	-0.7862	0.7225
dsm10	0.2262	-0.0906	-0.1386	-0.2030	0.3384	1.1324
dsm11	0.1601	0.0719	0.1844	0.4807	-0.1273	0.1811
dsm12	0.4476	0.2599	-0.2179	-0.0092	-0.4407	0.0758

Standardized Canonical Coefficients for the DSM IV Questions

	DSM_7	DSM_8	DSM_9	DSM_10	DSM_11	DSM_12
dsm1	-1.4939	-1.2409	0.0870	0.3264	0.0263	0.2552
dsm2	1.0612	0.0920	-0.1984	-1.3253	-0.3331	-0.4521
dsm3	-0.1296	0.1802	-0.0602	0.6363	1.4821	-0.3129
dsm4	1.1014	-0.8168	-0.2879	-0.0042	0.1528	0.0771
dsm5	-0.5114	-0.0977	-0.3772	0.0606	-0.5234	-1.2431
dsm6	-0.0249	0.0830	1.0206	-0.1148	0.0007	-0.4900
dsm7	0.6306	0.0022	0.4358	-0.0565	0.3971	1.3125
dsm8	0.1475	0.7825	-0.0066	0.7973	-0.2116	-0.2070
dsm9	0.6690	0.9138	0.1174	0.4406	-1.1276	0.5423
dsm10	-0.1086	-1.1884	0.1118	0.1805	-0.3132	-0.5051
dsm11	-0.3304	0.0621	-1.0768	0.1787	0.1578	0.4529
dsm12	-0.7515	1.3126	0.1232	-0.9773	-0.0122	0.6273

Standardized Canonical Coefficients for the GA Questions

	GANON1	GANON2	GANON3	GANON4	GANON5	GANON6
ga1	0.1832	0.1457	-0.0353	-0.0079	0.1161	0.1023
ga2	0.1622	0.0137	0.1600	0.4861	-0.2580	-0.2996
ga3	0.2415	-0.0255	-0.2252	0.1292	0.2451	0.3402
ga4	-0.0868	0.0117	-0.0818	0.1036	0.1152	0.4552
ga5	-0.0039	0.0896	0.0818	0.0549	0.0251	0.4068
ga6	0.0601	0.1125	0.0030	-0.2399	0.3445	0.0702
ga7	0.0158	0.3325	-0.1169	0.1051	-0.2455	0.6074
ga8	0.0106	0.1305	0.0388	-0.1166	0.4785	0.0802
ga9	0.1459	0.0618	0.0642	0.0758	-0.4165	-0.0655

ga10	0.1119	-0.0236	0.0041	-0.0511	-0.2119	-0.8936
ga11	0.1352	-0.0190	-0.0759	-0.0897	-0.6198	-0.3088
ga12	-0.1965	0.0471	0.1488	0.1356	0.7628	-1.4915
ga13	0.0762	0.0283	0.2521	0.4556	0.3525	0.3246
ga14	-0.0866	-0.1159	0.0392	-0.2514	1.0541	0.3707
ga15	0.1600	0.0222	0.3357	-0.0603	-0.0235	0.2295
ga16	0.1149	0.2919	0.0623	-0.1545	-0.5357	0.3778
ga17	0.2519	0.0626	-0.1692	0.1562	-0.4933	0.2560
ga18	-0.0430	-0.0194	0.3779	-0.3235	0.3084	-0.5809
ga19	-0.0067	0.0367	0.1756	-0.1019	-0.3994	-0.1847
ga20	0.0020	0.2910	-0.0115	0.0410	-0.5868	-0.1102

Standardized Canonical Coefficients for the GA Questions

	GANON7	GANON8	GANON9	GANON10	GANON11	GANON12
ga1	-0.0500	0.5308	-0.7940	0.4372	0.1514	-0.0433
ga2	0.4886	0.0418	0.0632	-0.1429	0.6576	-0.2316
ga3	-0.2106	-0.7034	-0.2992	-0.2176	0.2948	-0.6663
ga4	0.3698	-0.4024	0.5356	0.2013	-0.6411	0.7625
ga5	-0.0544	0.3052	-0.7495	-0.0769	-0.4978	0.3153
ga6	-0.5482	0.7161	1.0557	-0.0384	0.0419	-0.1005
ga7	-0.4145	-0.3281	-0.0788	-0.0444	-0.4048	0.0755
ga8	0.0993	0.9127	-0.7618	-0.5295	0.1036	0.2741
ga9	0.0887	-0.9534	-0.1370	-1.0395	-0.2094	1.3382
ga10	0.1589	0.3726	-0.2637	0.3551	0.0647	-0.0717
ga11	-0.1824	0.2129	0.4788	0.0263	-0.5281	-0.0846
ga12	-0.7183	-0.5093	-0.1588	0.2800	-0.1528	-0.5601
ga13	-0.4780	0.0592	0.0941	0.2975	-0.4974	0.2692
ga14	1.3910	-0.0396	0.2772	0.3969	-0.4861	0.2257
ga15	-0.7924	-0.2587	0.2526	0.1456	0.2515	-1.1466
ga16	-0.1148	-0.2463	0.1523	0.9740	1.3711	0.4341
ga17	-0.5296	-0.1180	-0.3501	0.1798	0.7052	-0.6952
ga18	0.2242	0.1491	0.3224	-0.7554	0.4217	0.9686
ga19	0.5229	-0.2507	-0.0067	0.6099	-0.1441	-0.4677
ga20	0.7057	0.4666	0.3428	-0.9121	-0.2259	-0.9357

Canonical Structure

Correlations Between the DSM IV Questions and Their Canonical Variables

	DSM_1	DSM_2	DSM_3	DSM_4	DSM_5	DSM_6
dsm1	-0.1538	0.9183	-0.0830	0.0363	0.0871	-0.1619
dsm2	-0.2299	0.8433	-0.0004	0.1028	0.2314	0.0185
dsm3	-0.0892	0.8746	-0.0717	-0.0560	-0.0255	0.1423
dsm4	0.8310	0.1722	-0.1986	-0.0138	-0.1952	-0.2805
dsm5	0.2201	0.0822	0.8149	-0.4369	-0.1353	-0.0188
dsm6	0.3549	0.0192	0.3328	0.7658	0.0919	0.0090
dsm7	0.2632	0.0074	0.8249	-0.3674	0.0762	0.0630
dsm8	0.7994	0.1105	-0.1229	-0.1121	0.2757	-0.2430
dsm9	-0.3020	0.8562	-0.0811	0.1166	-0.0901	0.1508
dsm10	0.8613	0.0803	-0.1922	-0.0945	0.0961	0.3062
dsm11	0.3322	-0.0581	0.3616	0.7031	0.1715	0.1364
dsm12	0.8913	0.2145	-0.2154	-0.1873	-0.0906	-0.0399

Correlations Between the DSM IV Questions and Their Canonical Variables

	DSM_7	DSM_8	DSM_9	DSM_10	DSM_11	DSM_12
dsm1	-0.1328	-0.2136	0.0594	0.0269	-0.1189	0.0975
dsm2	0.1922	-0.0471	-0.1343	-0.3038	-0.0405	-0.1426
dsm3	0.0888	0.0621	-0.0036	0.1094	0.3634	-0.2050
dsm4	0.2876	-0.1575	-0.0062	0.1159	-0.0448	0.0182
dsm5	-0.0258	0.0541	-0.1056	-0.0571	-0.0674	-0.2207
dsm6	0.0280	0.0277	0.3875	0.0326	-0.0235	-0.1211
dsm7	0.1240	-0.0474	0.0889	-0.0665	0.0750	0.2643
dsm8	0.1125	0.1398	-0.0468	0.3333	-0.1887	-0.0705
dsm9	0.1233	0.0606	0.0579	0.1784	-0.2633	0.0351
dsm10	0.0087	-0.2099	0.0155	0.0758	-0.1930	-0.1247
dsm11	-0.0422	0.0185	-0.4428	0.0521	-0.0342	0.1053
dsm12	-0.1192	0.1426	0.0522	-0.1591	-0.0682	0.0321

Correlations Between the GA Questions and Their Canonical Variables

	GANON1	GANON2	GANON3	GANON4	GANON5	GANON6
ga1	0.8084	0.1972	-0.1806	-0.1626	0.0988	-0.1201
ga2	0.2929	-0.0485	0.3151	0.8054	0.0374	-0.0319
ga3	0.8255	0.0921	-0.2276	-0.1293	0.2079	0.0011
ga4	-0.1611	0.8561	-0.0644	0.0160	0.1014	-0.0313
ga5	0.1909	0.0319	0.7607	-0.2519	-0.0417	0.1571
ga6	0.8228	0.0971	-0.1579	-0.1584	0.2031	-0.0250
ga7	-0.1411	0.8971	-0.0915	0.0121	-0.0027	0.0747
ga8	-0.1978	0.8529	-0.0564	0.0332	0.1700	0.0227
ga9	0.8775	0.0829	-0.0903	-0.0575	-0.0035	-0.0873
ga10	0.8359	0.0951	-0.1304	-0.1328	-0.0424	-0.2864
ga11	0.7995	0.1435	-0.1586	-0.1755	-0.1433	-0.1403
ga12	-0.2399	0.8346	-0.1112	0.0903	0.2582	-0.3131
ga13	0.3898	-0.0313	0.4107	0.7143	0.0662	0.0469
ga14	0.7874	0.1570	-0.0967	-0.1881	0.3414	0.0465
ga15	0.2191	0.0486	0.8073	-0.3569	0.0148	0.1582
ga16	-0.2239	0.8660	-0.0257	-0.0446	-0.0361	0.0302
ga17	0.8352	0.1002	-0.2173	-0.1043	0.0905	-0.0193
ga18	0.2279	0.0407	0.7628	-0.4647	0.0484	-0.0833
ga19	0.1615	-0.0071	0.7529	-0.3137	-0.2093	-0.0272
ga20	-0.1957	0.8984	-0.0805	0.0758	-0.0550	-0.0608

Correlations Between the GA Questions and Their Canonical Variables

	GANON7	GANON8	GANON9	GANON10	GANON11	GANON12
ga1	-0.0011	0.0954	-0.2105	0.1513	-0.0869	0.0080
ga2	0.1744	0.0680	0.1337	-0.0437	0.1840	-0.0234
ga3	0.0079	-0.2311	-0.0584	-0.0955	0.0076	-0.1165
ga4	0.0810	-0.1183	0.0948	0.1121	-0.0967	0.0974
ga5	-0.0678	0.0418	-0.2451	0.0181	-0.2131	0.0283
ga6	-0.1366	0.1255	0.3093	-0.0284	-0.0422	0.0436
ga7	-0.0621	-0.0478	0.0489	-0.0597	-0.1449	-0.0517
ga8	0.0609	0.1088	-0.1349	-0.1036	0.1119	0.0550
ga9	0.0340	-0.2658	-0.0192	-0.1430	-0.0700	0.1863
ga10	0.0872	0.0792	-0.0163	0.0988	-0.1151	0.0313
ga11	-0.0335	0.0806	0.1383	0.1182	-0.2271	0.0677
ga12	-0.0658	-0.1732	-0.0179	0.0759	-0.0249	-0.0205
ga13	-0.0615	0.1434	0.0809	0.1137	-0.1341	0.1146
ga14	0.2997	-0.0654	0.1047	0.0890	-0.0818	-0.0166
ga15	-0.0869	-0.1466	0.0019	-0.0416	-0.0092	-0.2181
ga16	0.0382	-0.0875	0.0570	0.2191	0.2746	0.1304
ga17	0.0077	0.0498	-0.0076	0.0001	0.0000	0.0202
ga18	-0.0219	0.0565	0.0050	-0.1508	0.0136	0.0672
ga19	0.1356	-0.1455	-0.1186	0.1455	-0.1913	-0.0895
ga20	0.1888	0.0445	0.0588	-0.1532	-0.0378	-0.1581

Correlations Between the DSM IV Questions and the Canonical Variables of the GA Questions

	GANON1	GANON2	GANON3	GANON4	GANON5	GANON6
dsm1	-0.1481	0.8820	-0.0763	0.0319	0.0563	-0.0871
dsm2	-0.2213	0.8100	-0.0004	0.0904	0.1497	0.0100
dsm3	-0.0859	0.8401	-0.0660	-0.0492	-0.0165	0.0766
dsm4	0.7999	0.1654	-0.1827	-0.0121	-0.1263	-0.1509
dsm5	0.2119	0.0789	0.7496	-0.3842	-0.0875	-0.0101
dsm6	0.3416	0.0185	0.3061	0.6734	0.0595	0.0048
dsm7	0.2534	0.0072	0.7588	-0.3231	0.0493	0.0339
dsm8	0.7695	0.1062	-0.1130	-0.0986	0.1783	-0.1307
dsm9	-0.2907	0.8224	-0.0746	0.1026	-0.0583	0.0811
dsm10	0.8291	0.0771	-0.1768	-0.0831	0.0621	0.1647
dsm11	0.3197	-0.0558	0.3327	0.6183	0.1109	0.0733
dsm12	0.8580	0.2061	-0.1981	-0.1647	-0.0586	-0.0215

Correlations Between the DSM IV Questions and the Canonical Variables of the GA Questions

	GANON7	GANON8	GANON9	GANON10	GANON11	GANON12
dsm1	-0.0640	-0.0884	0.0205	0.0078	-0.0286	0.0139
dsm2	0.0926	-0.0195	-0.0463	-0.0877	-0.0097	-0.0203
dsm3	0.0428	0.0257	-0.0013	0.0316	0.0873	-0.0291
dsm4	0.1386	-0.0652	-0.0022	0.0335	-0.0108	0.0026
dsm5	-0.0124	0.0224	-0.0364	-0.0165	-0.0162	-0.0314
dsm6	0.0135	0.0115	0.1336	0.0094	-0.0056	-0.0172
dsm7	0.0598	-0.0196	0.0306	-0.0192	0.0180	0.0376
dsm8	0.0542	0.0579	-0.0161	0.0962	-0.0453	-0.0100
dsm9	0.0594	0.0251	0.0200	0.0515	-0.0633	0.0050
dsm10	0.0042	-0.0869	0.0054	0.0219	-0.0463	-0.0177
dsm11	-0.0203	0.0077	-0.1527	0.0151	-0.0082	0.0150
dsm12	-0.0575	0.0590	0.0180	-0.0459	-0.0164	0.0046

Correlations Between the GA Questions and the Canonical Variables of the DSM IV Questions

	DSM_1	DSM_2	DSM_3	DSM_4	DSM_5	DSM_6
ga1	0.7782	0.1895	-0.1661	-0.1430	0.0639	-0.0646
ga2	0.2819	-0.0466	0.2898	0.7083	0.0242	-0.0172
ga3	0.7946	0.0884	-0.2094	-0.1137	0.1345	0.0006
ga4	-0.1551	0.8223	-0.0593	0.0140	0.0656	-0.0169
ga5	0.1838	0.0307	0.6998	-0.2215	-0.0270	0.0845
ga6	0.7921	0.0933	-0.1452	-0.1393	0.1313	-0.0134
ga7	-0.1358	0.8617	-0.0842	0.0107	-0.0017	0.0402
ga8	-0.1904	0.8192	-0.0519	0.0292	0.1100	0.0122
ga9	0.8447	0.0796	-0.0831	-0.0505	-0.0023	-0.0470
ga10	0.8047	0.0914	-0.1200	-0.1168	-0.0274	-0.1540
ga11	0.7696	0.1378	-0.1459	-0.1543	-0.0927	-0.0755
ga12	-0.2309	0.8017	-0.1023	0.0794	0.1670	-0.1684
ga13	0.3752	-0.0300	0.3778	0.6282	0.0428	0.0252
ga14	0.7579	0.1508	-0.0890	-0.1654	0.2208	0.0250
ga15	0.2109	0.0467	0.7426	-0.3138	0.0096	0.0851
ga16	-0.2155	0.8318	-0.0236	-0.0392	-0.0234	0.0162
ga17	0.8040	0.0963	-0.1999	-0.0917	0.0585	-0.0104
ga18	0.2194	0.0391	0.7017	-0.4087	0.0313	-0.0448
ga19	0.1555	-0.0069	0.6926	-0.2758	-0.1354	-0.0146
ga20	-0.1884	0.8629	-0.0741	0.0667	-0.0355	-0.0327

Correlations Between the GA Questions and the Canonical Variables of the DSM IV Questions

	DSM_7	DSM_8	DSM_9	DSM_10	DSM_11	DSM_12
ga1	-0.0005	0.0395	-0.0726	0.0437	-0.0209	0.0011
ga2	0.0840	0.0281	0.0461	-0.0126	0.0442	-0.0033
ga3	0.0038	-0.0956	-0.0201	-0.0276	0.0018	-0.0166
ga4	0.0390	-0.0490	0.0327	0.0324	-0.0232	0.0139
ga5	-0.0327	0.0173	-0.0845	0.0052	-0.0512	0.0040
ga6	-0.0658	0.0519	0.1067	-0.0082	-0.0101	0.0062
ga7	-0.0299	-0.0198	0.0169	-0.0172	-0.0348	-0.0074
ga8	0.0294	0.0450	-0.0465	-0.0299	0.0269	0.0078
ga9	0.0164	-0.1100	-0.0066	-0.0413	-0.0168	0.0265
ga10	0.0420	0.0328	-0.0056	0.0285	-0.0277	0.0044
ga11	-0.0161	0.0334	0.0477	0.0341	-0.0545	0.0096
ga12	-0.0317	-0.0717	-0.0062	0.0219	-0.0060	-0.0029
ga13	-0.0296	0.0593	0.0279	0.0328	-0.0322	0.0163
ga14	0.1444	-0.0270	0.0361	0.0257	-0.0196	-0.0024
ga15	-0.0419	-0.0607	0.0007	-0.0120	-0.0022	-0.0310
ga16	0.0184	-0.0362	0.0197	0.0633	0.0660	0.0185
ga17	0.0037	0.0206	-0.0026	0.0000	0.0000	0.0029
ga18	-0.0106	0.0234	0.0017	-0.0435	0.0033	0.0095
ga19	0.0653	-0.0602	-0.0409	0.0420	-0.0459	-0.0127
ga20	0.0910	0.0184	0.0203	-0.0442	-0.0091	-0.0225

Coefficients: Standardized Canonical Coefficients for the DSM IV Questions

Variable	DSM_1	DSM_2	DSM_3	DSM_4	Question
dsm1	-0.0270	0.3918	0.1335	0.0087	Wished stop thkg re gambling
dsm2	-0.0797	0.1119	-0.0953	0.0161	Wished stop thkg re get money
dsm3	0.1124	0.3202	-0.0297	-0.0477	Felt need to bet more and more
dsm4	0.2003	0.0055	-0.0445	0.2112	Rely on others for funds
dsm5	-0.0067	0.0498	0.5797	-0.1667	Gamble to escape
dsm6	0.1021	-0.0079	0.2610	0.5467	Lie about how much I gamble
dsm7	0.1125	0.0602	0.3603	-0.2999	Relaxing difficult if not gambling
dsm8	0.0687	-0.0183	-0.0335	-0.2591	Win back money next day
dsm9	-0.1816	0.2548	0.0098	0.0748	Felt I should cut back on gambling
dsm10	0.2262	-0.0906	-0.1386	-0.2030	Illegal acts to pay for gambling
dsm11	0.1601	0.0719	0.1844	0.4807	Danger of losing relationship
dsm12	0.4476	0.2599	-0.2179	-0.0092	Danger of losing job

Coefficients: Correlations Between the GA Questions and Their Canonical Variables

Variable	GANON1	GANON2	GANON3	GANON4	Question
ga1	0.1832	0.1457	-0.0353	-0.0079	Lost time from work from gambling
ga2	0.1622	0.0137	0.1600	0.4861	Gambling made home life unhappy
ga3	0.2415	-0.0255	-0.2252	0.1292	Gambling affected reputation
ga4	-0.0868	0.0117	-0.0818	0.1036	Felt remorse after gambling
ga5	-0.0039	0.0896	0.0818	0.0549	Gamble to get money for debts
ga6	0.0601	0.1125	0.0030	-0.2399	Caused decreased ambition/efficiency
ga7	0.0158	0.3325	-0.1169	0.1051	Felt must return win back losses
ga8	0.0106	0.1305	0.0388	-0.1166	After win want to return win more
ga9	0.1459	0.0618	0.0642	0.0758	Gambled until last dollar gone
ga10	0.1119	-0.0236	0.0041	-0.0511	Borrowed to finance gambling
ga11	0.1352	-0.0190	-0.0759	-0.0897	Sold things to finance gambling
ga12	-0.1965	0.0471	0.1488	0.1356	Kept gambling money for gambling
ga13	0.0762	0.0283	0.2521	0.4556	Gambling->Careless of self/family
ga14	-0.0866	-0.1159	0.0392	-0.2514	Gambled longer than planned
ga15	0.1600	0.0222	0.3357	-0.0603	Gambled to escape worry/trouble
ga16	0.1149	0.2919	0.0623	-0.1545	Illegal act to finance gambling;
ga17	0.2519	0.0626	-0.1692	0.1562	Lost time from work from gambling
ga18	-0.0430	-0.0194	0.3779	-0.3235	Gambling made home life unhappy
ga19	-0.0067	0.0367	0.1756	-0.1019	Gambling affected reputation
ga20	0.0020	0.2910	-0.0115	0.0410	Felt remorse after gambling

Canonical Structure: Correlations Between the DSM IV Questions and Their Canonical Variables

Variable	DSM_1	DSM_2	DSM_3	DSM_4	Question
dsm1	-0.1538	0.9183	-0.0830	0.0363	Wished stop thkg re gambling
dsm2	-0.2299	0.8433	-0.0004	0.1028	Wished stop thkg re get money
dsm3	-0.0892	0.8746	-0.0717	-0.0560	Felt need to bet more and more
dsm4	0.8310	0.1722	-0.1986	-0.0138	Rely on others for funds
dsm5	0.2201	0.0822	0.8149	-0.4369	Gamble to escape
dsm6	0.3549	0.0192	0.3328	0.7658	Lie about how much I gamble
dsm7	0.2632	0.0074	0.8249	-0.3674	Relaxing difficult if not gambling
dsm8	0.7994	0.1105	-0.1229	-0.1121	Win back money next day
dsm9	-0.3020	0.8562	-0.0811	0.1166	Felt I should cut back on gambling
dsm10	0.8613	0.0803	-0.1922	-0.0945	Illegal acts to pay for gambling
dsm11	0.3322	-0.0581	0.3616	0.7031	Danger of losing relationship
dsm12	0.8913	0.2145	-0.2154	-0.1873	Danger of losing job

Canonical Structure: Correlations Between the GA Questions and Their Canonical Variables

Variable	GANON1	GANON2	GANON3	GANON4	Question
ga1	0.8084	0.1972	-0.1806	-0.1626	Lost time from work from gambling
ga2	0.2929	-0.0485	0.3151	0.8054	Gambling made home life unhappy
ga3	0.8255	0.0921	-0.2276	-0.1293	Gambling affected reputation
ga4	-0.1611	0.8561	-0.0644	0.0160	Felt remorse after gambling
ga5	0.1909	0.0319	0.7607	-0.2519	Gamble to get money for debts
ga6	0.8228	0.0971	-0.1579	-0.1584	Caused decreased ambition/efficiency
ga7	-0.1411	0.8971	-0.0915	0.0121	Felt must return win back losses
ga8	-0.1978	0.8529	-0.0564	0.0332	After win want to return win more
ga9	0.8775	0.0829	-0.0903	-0.0575	Gambled until last dollar gone
ga10	0.8359	0.0951	-0.1304	-0.1328	Borrowed to finance gambling
ga11	0.7995	0.1435	-0.1586	-0.1755	Sold things to finance gambling
ga12	-0.2399	0.8346	-0.1112	0.0903	Kept gambling money for gambling
ga13	0.3898	-0.0313	0.4107	0.7143	Gambling->Careless of self/family
ga14	0.7874	0.1570	-0.0967	-0.1881	Gambled longer than planned
ga15	0.2191	0.0486	0.8073	-0.3569	Gambled to escape worry/trouble
ga16	-0.2239	0.8660	-0.0257	-0.0446	Illegal act to finance gambling;
ga17	0.8352	0.1002	-0.2173	-0.1043	Lost time from work from gambling
ga18	0.2279	0.0407	0.7628	-0.4647	Gambling made home life unhappy
ga19	0.1615	-0.0071	0.7529	-0.3137	Gambling affected reputation
ga20	-0.1957	0.8984	-0.0805	0.0758	Felt remorse after gambling