

## CHAPTER 6: FACTOR ANALYSIS

### Analysis of anxiety data

#### 2-Factor Unrotated Solution

##### Communalities

	Initial	Extraction
X1	.430	.393
X2	.443	.406
X3	.378	.356
X4	.477	.435
X5	.427	.517
X6	.302	.279
X7	.512	.539
X8	.511	.512
X9	.451	.480
X10	.270	.254
X11	.564	.569
X12	.449	.436
X13	.397	.350
X14	.454	.441
X15	.638	.643
X16	.588	.612
X17	.508	.529
X18	.470	.461
X19	.485	.431
X20	.493	.438

Extraction Method: Maximum Likelihood.

**Total Variance Explained**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.779	43.895	43.895	8.251	41.255	41.255
2	1.350	6.748	50.643	.831	4.155	45.410
3	.971	4.855	55.498			
4	.888	4.440	59.938			
5	.774	3.872	63.810			
6	.742	3.708	67.518			
7	.706	3.531	71.049			
8	.655	3.274	74.324			
9	.571	2.853	77.177			
10	.543	2.717	79.894			
11	.541	2.705	82.599			
12	.506	2.530	85.129			
13	.472	2.360	87.489			
14	.436	2.180	89.669			
15	.419	2.095	91.764			
16	.377	1.887	93.651			
17	.348	1.741	95.392			
18	.332	1.662	97.054			
19	.314	1.569	98.623			
20	.275	1.377	100.000			

Extraction Method: Maximum Likelihood.

**Factor Matrix<sup>a</sup>**

	Factor	
	1	2
X1	.623	-6.71E-02
X2	.617	-.161
X3	.541	.251
X4	.653	9.360E-02
X5	.513	.504
X6	.489	.200
X7	.676	.287
X8	.693	-.179
X9	.660	-.212
X10	.496	-9.19E-02
X11	.733	-.179
X12	.653	-9.69E-02
X13	.589	-5.74E-02
X14	.639	.181
X15	.799	-7.11E-02
X16	.753	-.212
X17	.642	.342
X18	.665	-.136
X19	.653	-6.42E-02
X20	.662	1.732E-02

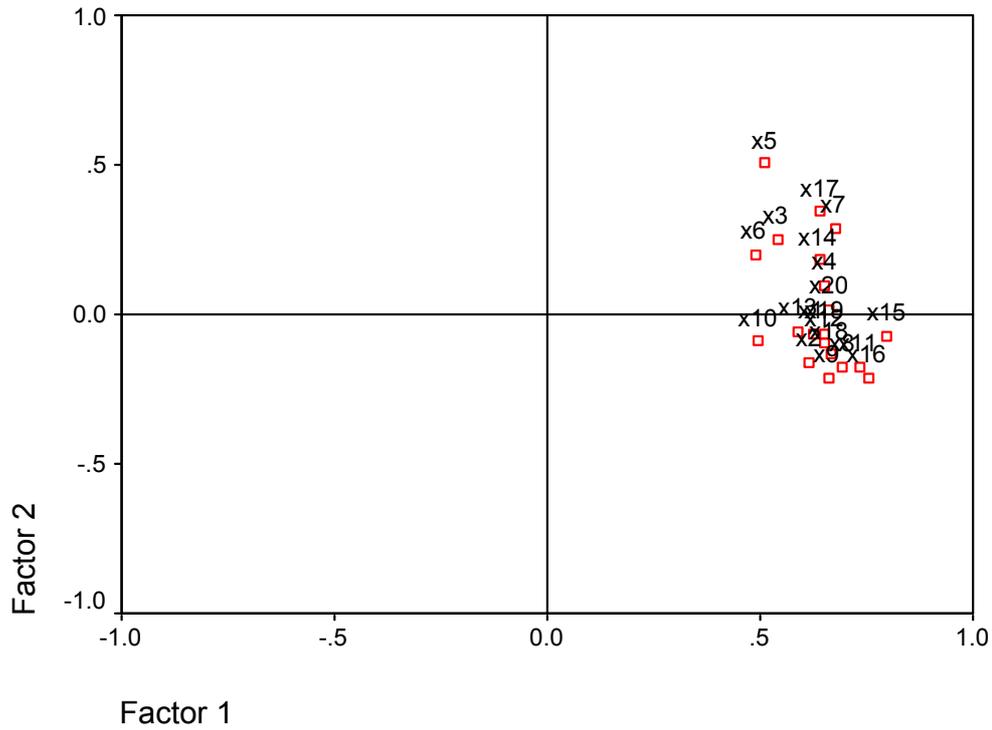
Extraction Method: Maximum Likelihood.

a. 2 factors extracted. 5 iterations required.

**Goodness-of-fit Test**

Chi-Square	df	Sig.
287.501	151	.000

## Factor Plot



## 2-Factor OBLIMIN Rotated Solution

### Communalities

	Initial	Extraction
X1	.430	.393
X2	.443	.406
X3	.378	.356
X4	.477	.435
X5	.427	.517
X6	.302	.279
X7	.512	.539
X8	.511	.512
X9	.451	.480
X10	.270	.254
X11	.564	.569
X12	.449	.436
X13	.397	.350
X14	.454	.441
X15	.638	.643
X16	.588	.612
X17	.508	.529
X18	.470	.461
X19	.485	.431
X20	.493	.438

Extraction Method: Maximum Likelihood.

**Total Variance Explained**

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.779	43.895	43.895	8.251	41.255	41.255	7.910
2	1.350	6.748	50.643	.831	4.155	45.410	5.874
3	.971	4.855	55.498				
4	.888	4.440	59.938				
5	.774	3.872	63.810				
6	.742	3.708	67.518				
7	.706	3.531	71.049				
8	.655	3.274	74.324				
9	.571	2.853	77.177				
10	.543	2.717	79.894				
11	.541	2.705	82.599				
12	.506	2.530	85.129				
13	.472	2.360	87.489				
14	.436	2.180	89.669				
15	.419	2.095	91.764				
16	.377	1.887	93.651				
17	.348	1.741	95.392				
18	.332	1.662	97.054				
19	.314	1.569	98.623				
20	.275	1.377	100.000				

Extraction Method: Maximum Likelihood.

- a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

**Factor Matrix<sup>a</sup>**

	Factor	
	1	2
X1	.623	-6.71E-02
X2	.617	-.161
X3	.541	.251
X4	.653	9.360E-02
X5	.513	.504
X6	.489	.200
X7	.676	.287
X8	.693	-.179
X9	.660	-.212
X10	.496	-9.19E-02
X11	.733	-.179
X12	.653	-9.69E-02
X13	.589	-5.74E-02
X14	.639	.181
X15	.799	-7.11E-02
X16	.753	-.212
X17	.642	.342
X18	.665	-.136
X19	.653	-6.42E-02
X20	.662	1.732E-02

Extraction Method: Maximum Likelihood.

a. 2 factors extracted. 5 iterations required.

**Goodness-of-fit Test**

Chi-Square	df	Sig.
287.501	151	.000

**Pattern Matrix<sup>a</sup>**

	Factor	
	1	2
X1	.565	8.603E-02
X2	.665	-4.14E-02
X3	.144	.489
X4	.408	.310
X5	-.163	.820
X6	.160	.406
X7	.209	.575
X8	.746	-4.44E-02
X9	.757	-9.84E-02
X10	.493	1.686E-02
X11	.777	-3.34E-02
X12	.622	5.441E-02
X13	.527	8.934E-02
X14	.299	.423
X15	.707	.130
X16	.830	-7.16E-02
X17	.120	.640
X18	.675	5.949E-03
X19	.585	9.843E-02
X20	.500	.210

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

### Structure Matrix

	Factor	
	1	2
X1	.624	.472
X2	.637	.413
X3	.478	.587
X4	.620	.589
X5	.398	.709
X6	.437	.515
X7	.602	.718
X8	.715	.465
X9	.689	.419
X10	.504	.354
X11	.754	.497
X12	.659	.479
X13	.588	.449
X14	.588	.627
X15	.796	.614
X16	.781	.496
X17	.557	.722
X18	.679	.467
X19	.653	.499
X20	.644	.552

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

### Factor Correlation Matrix

Factor	1	2
1	1.000	.684
2	.684	1.000

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

# Factor Plot in Rotated Factor Space

