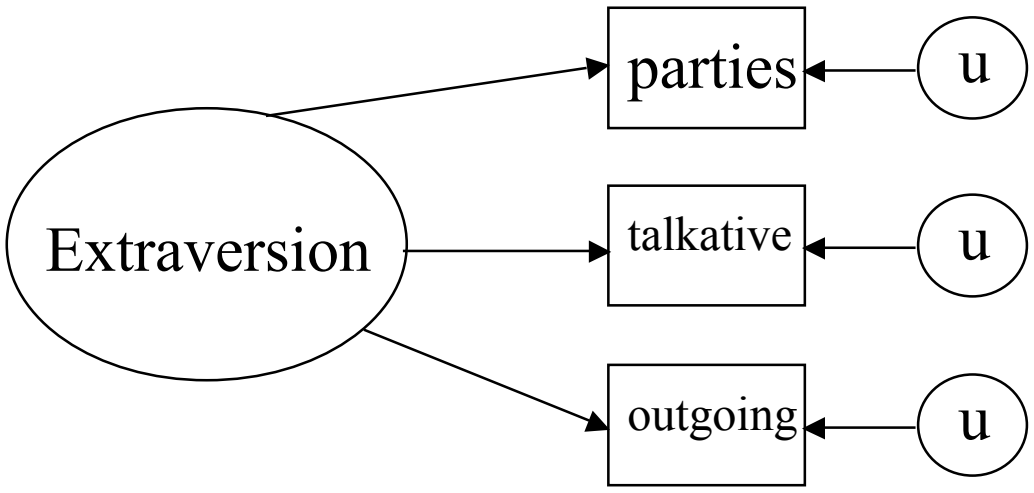
EFA II

- Review of Conceptual Model
- Steps in EFA
- Sample Size
- Conceptual Issues in Interpretation
- Presenting Results

Review of Conceptual Model

- Variables of interest typically can't be measured directly
  - » "latent" or "unobserved" or "unmeasured"
- Responses to items on scale are "indicators" of variable of interest
  - » "manifest" or "measured" variables
- Called the "common factor model"



Steps in EFA

- Selecting variables/items
- Preparing/checking correlation matrix
- Extracting factors
- Determining the number of factors
- Rotating factors
- Interpreting results
- Verify structure by establishing construct validity

Selecting Items/Scale Development

- Be sure you can clearly define the construct of interest
  - » succinct definition
  - » clarity about how it differs from other constructs
- Generate a large pool of items
- Characteristics of good items
  - » not too lengthy
  - » appropriate reading level
  - » no double negatives ("I'm not in favor of stopping funding for nuclear power")
  - » no multi-clause items ("I support civil rights because discrimination is a crime against God")
  - » some should be positively and some negatively worded
- See Devellis, R. F. (2003). *Scale development: Theory and application (2nd edition*). Thousand Oaks, CA: Sage.

Checking Correlation Matrix

- Common factor model implies that variables (items) are correlated with at least some other items
- If no correlations, FA not appropriate technique
- Can scan intercorrelation matrix
  - » want to see a goodly number greater than .30 in absolute value
  - » but difficult to do if large number of items
- Two statistics are helpful

Bartlett's Test of Sphericity

- Tests the null hypothesis that intercorrelation matrix is an identity matrix (1's on diagonal, 0's everywhere else)
- We know the diagonal is all 1's
  - » correlation of every variable with itself = 1.0
- If the off-diagonal elements are all zero, then no item is correlated with any other item
  - » and FA would not be appropriate
- Thus, we want to reject the null hypothesis
  - » if $p > .05$ on Bartlett's test, should not proceed with FA

Kaiser-Meyer-Olkin

- KMO measure of sampling accuracy compares magnitudes of zero-order correlations to partial correlations (controlling for all other items)
- These partial correlations are estimates of the correlations between unique factors
  - » these correlations should be zero (hence the name "unique")
- If KMO close to 1.0, then unique factors are not correlated
- If KMO << 1.0, FA not a good idea
  - » because correlations between pairs of items can't be explained by the other variables
  - » suggests the common factor model is not appropriate

KMO guidelines

- Kaiser (1974) says:
  - .90's marvelous
  - 80's meritorious
  - 70's middling
  - 60's mediocre
  - 50's miserable
  - below .50 unacceptable
- Tabachnick & Fidell (2001)
  - above .60 acceptable

Determining Number of Factors

- Kaiser criterion: Eigenvalues > 1.0
  - » SPSS default
- Cattell's scree test
  - » look for the elbow
  - » retain factors up to (and maybe including) the elbow
- A priori criterion
  - » choose number of factors based on theory or previous research
- Whatever decision rule is used, the end result must be *interpretable* factors

Extraction Methods

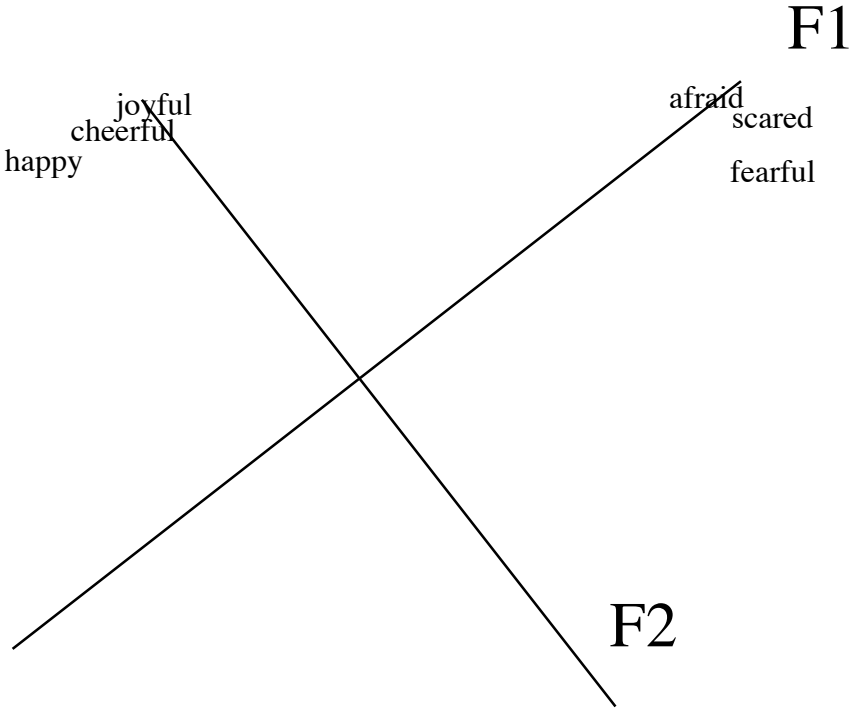
- Several specific mathematical methods for how to determine factors (e.g., PCA, ULS, GLS, ML)
- Principal Components method is computationally tractable
  - » only method possible before modern computers
  - » default in SPSS
- PCA seeks to explain total variance in items
- Other methods seek to explain common variance in items
  - » usually this better matches our underlying model and goals

Methods of Extraction

- ML method provides test of fit
- Tests null hypothesis that the model adequately accounts for the observed correlations among items
  - » if you fail to reject the null, you support the model
  - » so, want $p > .05$
  - » testing simple confirmatory factor analysis models
- Solutions from the different extraction methods (including PCA) are usually very similar

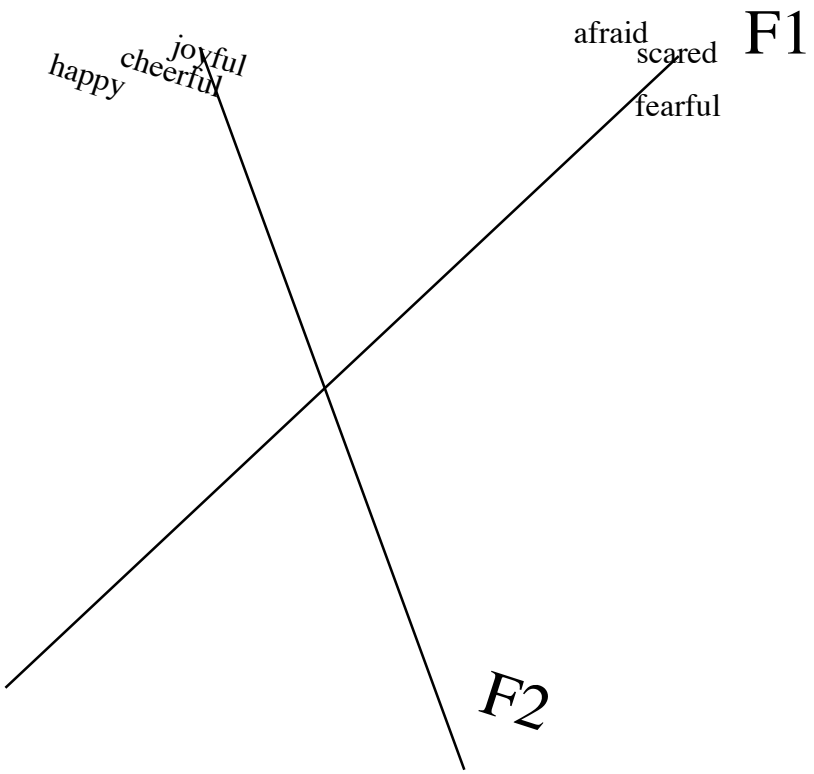
Rotation

- Rotation makes interpretation easier
- Orthogonal rotations
  - » axes remain at right angles
- Factors are uncorrelated



Oblique Rotations

- Sometimes theory suggests (or data indicate) that factors are correlated
- Can do an oblique rotation
  - » axes do not have to remain at right angles
- Factors are correlated



Choosing a Rotation Method

- Theory: Does theory or past research suggest that the factors are correlated?
- Empirically, are the factors correlated? (one or more correlations above .30)
- If so, go with oblimin
  - » (or other method for correlated factors)
- Otherwise, interpretation is simpler with orthogonal rotations
- Varimax is usually a good method
  - » SPSS provides other variants

Rotation Methods

- Several algorithms for performing rotations
- Main distinction: orthogonal or oblique
- With orthogonal rotations, factors will be uncorrelated
  - » varimax method most common
- Oblique rotations allow factors to correlate
  - » direct oblimin method most common
- Often, different rotation methods yield very similar results

Oblique Rotation: Interpretation

- SPSS provides "pattern" and "structure" matrices
- Structure matrix = correlations between factors and variables
  - » not equivalent to loadings
  - » because some of the shared variance between a factor and an item is due to the path from factor1 to factor2 to the item
- Pattern matrix = factor loadings
- Generally, interpret factor loadings
- SPSS also produces matrix of intercorrelations among factors

Empathy Example

- Factor loadings for empathy scale

Rotated Factor Matrix[a]

	Factor			
	1	2	3	4
EC: touched	**.708**	.201		
EC: tender feelings	**.692**	.224		
EC: soft-hearted	**.645**			.293
EC: not disturbed/troubles	**-.597**		-.249	
EC: not sorry for others	**-.510**			
EC: no pity for maltreated	**-.492**	-.219		
PD: remain calm	**-.323**		-.322	
EC: protective of others	**.308**	.256		
FS: involved in novel		**.871**		
FS: feel like char in play		**.646**		
FS: invovled in book rare	-.309	**-.622**		
FS: imagine story events		**.611**		.228
FS: objective	-.369	**-.525**		
FS: see self as leading char	.215	**.504**		
PD: lose control/emergencies			**.887**	
PD: go to pieces/emergency			**.763**	
PD: ill-at-ease in emergency			**.583**	
PD: scared/tense situations	.242		**.419**	
PD: effective in emergencies			**-.414**	
PD: helpless in emot. sit.	.337		**.413**	
FS: daydream			**.294**	
PT: put self in others shoes		.243		**.699**
PT: imagine friend's perspective				**.666**
PT: imagine feelings of other			.216	**.601**
PT: see everybody's side				**.581**
PT: see both sides				**.520**
PT: can't see other's POV	-.329			**-.365**
PT: not listen to others				**-.276**

Extraction Method: Maximum Likelihood.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Empathy Example

- Oblique loadings

Pattern Matrix[a]

	Factor			
	1	2	3	4
EC: Touched	**.710**			
EC: Tender feelings	**.693**		-.121	
EC: soft-hearted	**.656**		.113	.229
EC: Other's misfortunes ok	**-.605**	-.152		.252
EC: Don't feel sorry	**-.526**			
EC: No pity	**-.499**	.177	.146	
PD: Calm	**-.291**	-.280		
EC: Feel protective	**.259**		-.211	.121
PD: Lose control/emergency	-.159	**.916**	-.162	
PD: Go pieces/emergency	-.222	**.800**		
PD: ill-at-ease/emergency		**.581**	.192	
PD: Effective/emergencies		**-.410**		
PD: Scared emoti. sit.	.205	**.394**		.111
PD: helpless emot. sit	.298	**.369**		
FA: Daydream		**.285**		-.186
FA: Involved with novel	-.108	-.120	**-.912**	
FA: feel like characters			**-.653**	
FA: Imagines novel			**-.624**	.185
FA: Not involved in book	-.223		**.606**	.108
FA: Objective	-.301		**.494**	.133
FA: See self as leading character	.111	.101	**-.487**	.107
PT: Puts self in others shoes	-.121		-.227	**.698**
PT: See friends perspective		-.200		**.655**
PT: imagine other's feelings		.234		**.608**
PT: Look everybody's side				**.594**
PT: See two sides	.122			**.511**
PT: Can't see other's POV	-.301			**-.323**
PT:Not listen	-.119			**-.257**

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 15 iterations.

Empathy Example

- Factor-item correlations

Structure Matrix

	Factor			
	1	2	3	4
EC: Touched	.752	.185	-.337	.247
EC: Tender feelings	.731	.251	-.344	
EC: soft-hearted	.686	.248	-.148	.346
EC: not disturbed/troubles	-.622	-.327	.252	.117
EC: Not sorry for others	-.530	-.159	.155	-.155
EC: No pity for maltreated	-.510		.308	-.177
PD: remain calm	-.381	-.361	.136	-.106
EC: protective of others	.375	.159	-.322	.206
PD: Lose control/emergencies	.166	.883	-.189	
PD: Go to pieces/emergency		.747		-.103
PD: ill-at-ease/emergency	.181	.587	.117	
PD: helpless in emot. sit.	.403	.455	-.162	
PD: Scared/tense situations	.307	.444		.137
PD: Effective in emergencies	-.167	-.424		
FA: Daydream	.110	.304		-.168
FA: Involved with novel	.154		-.860	
FA: feel like character in play	.240		-.666	.175
FA: involved in book rare	-.397		.662	
FA: Imagines story events	.176		-.628	.266
FA: Objective	-.445	-.145	.576	
FA: See self as leading char	.324	.167	-.548	.205
IPT: Put self in others shoes			-.293	.708
PT: See friends perspective	.164	-.183	-.177	.680
PT: imagine other's feelings	.153	.218	-.137	.602
PT: See everybody's side				.576
PT: See two sides	.211			.532
PT: Can't see others POV	-.383		.244	-.401
PT: not listen to others	-.214		.162	-.293

Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.

Output: Communalities

- Initial = % variance explained by all other items (except PCA where = 1.0)
- Extract = % var explained by factors

Communalities

	Initial	Extraction
FS: daydream	.400	.128
EC: tender feelings	.609	.554
PT: can't see other's POV	.457	.267
EC: not sorry for others	.411	.285
FS: involved in novel	.654	.774
PD: ill-at-ease in emergency	.609	.378
FS: objective	.485	.421
PT: see everybody's side	.529	.341
EC: protective of others	.397	.202
PD: helpless in emot. sit.	.396	.295
PT: imagine friend's perspective	.584	.505
FS: invovled in book rare	.617	.484
PD: remain calm	.446	.219
EC: not disturbed by others troubles	.541	.475
PT: not listen to others arguments	.347	.119
FS: feel like character in play	.551	.450
PD: scared in tense situations	.436	.251
EC: no pity for maltreated	.445	.313
PD: effective in emergencies	.445	.183
EC: touched	.606	.581
PT: see both sides	.565	.295
EC: soft-hearted	.580	.531
FS: puts self in place of leading char	.542	.342
PD: lose control in emergencies	.708	.820
PT: put self in others shoes	.585	.551
FS: imagine feeling story events	.587	.429
PD: go to pieces in emergency	.624	.607
PT: imagine feelings of other	.452	.415

Extraction Method: Maximum Likelihood.

Output: Variance Explained

- Total var explained unchanged after rotation

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.743	20.511	20.511	5.008	17.886	17.886	3.134	11.191	11.191
2	3.200	11.429	31.939	2.574	9.194	27.080	2.897	10.345	21.537
3	2.478	8.851	40.790	1.874	6.692	33.772	2.705	9.662	31.199
4	2.002	7.149	47.939	1.758	6.280	40.051	2.479	8.853	40.051
5	1.484	5.301	53.240						
6	1.303	4.654	57.894						
7	1.212	4.330	62.224						
8	1.093	3.903	66.127						
9	.993	3.547	69.674						
10	.903	3.225	72.899						
11	.788	2.815	75.714						
12	.738	2.637	78.351						
13	.618	2.208	80.559						
14	.613	2.190	82.750						
15	.596	2.130	84.880						
16	.557	1.991	86.870						
17	.482	1.721	88.591						
18	.441	1.574	90.166						
19	.427	1.523	91.689						
20	.400	1.430	93.119						
21	.335	1.197	94.316						
22	.316	1.127	95.444						
23	.264	.944	96.388						
24	.250	.891	97.280						
25	.234	.835	98.114						
26	.213	.762	98.876						
27	.166	.594	99.470						
28	.148	.530	100.000						

Extraction Method: Maximum Likelihood.

Sample Size

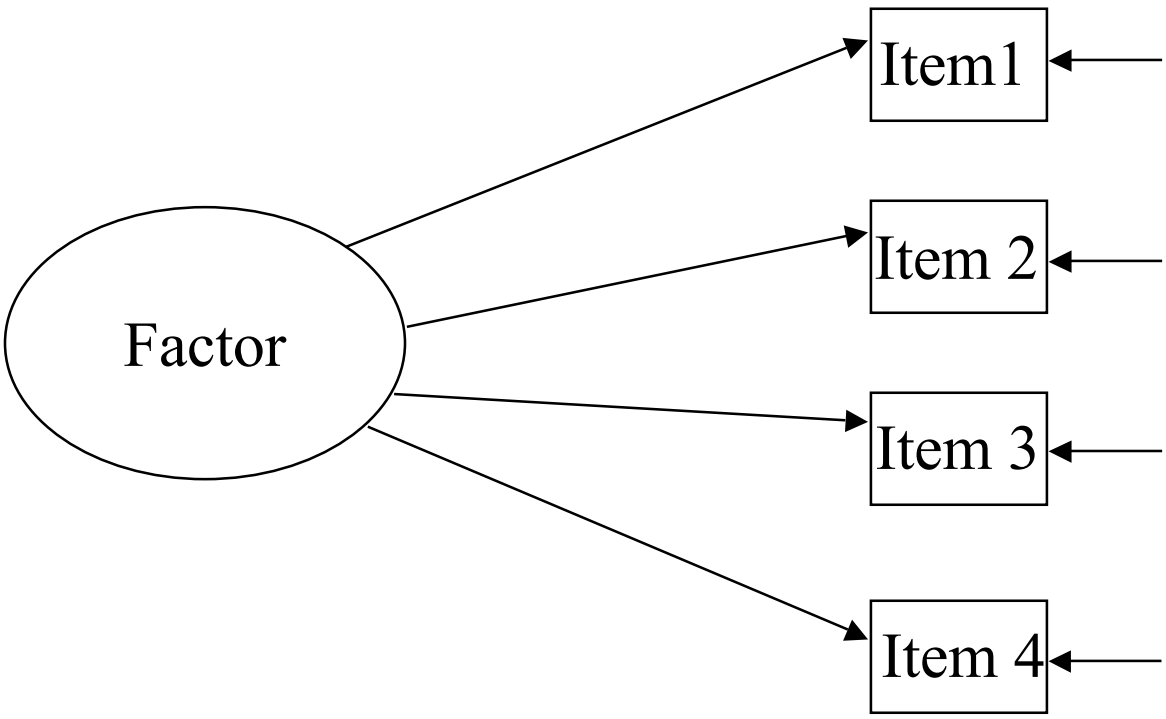
- General recommendation is 5-10 people per item
- And/or total n of 250-300
- Comrey & Lee (1992)
  - » 50 very poor, 100 poor, 200 fair, 300 good, 500 very good, 1000 excellent
- Smaller n usually ok if you have several "marker" variables (items that load above .80)
- Smaller n ok if communalities are high (Russell, 2002)
  - » e.g. Sample size of 60 ok in some cases
- Larger n needed if few items per factor (MacCallum et al., 1999)

Establish Construct Validity

- Does the measure/construct behave the way you would expect it to?
- If theory says that the construct you're trying to measure should be
  - » positively correlated with A and B
  - » negatively correlated with C and D
  - » uncorrelated with E and F
- Your factor/scale should be
  - » positively correlated with A and B
  - » negatively correlated with C and D
  - » uncorrelated with E and F
- Ongoing process

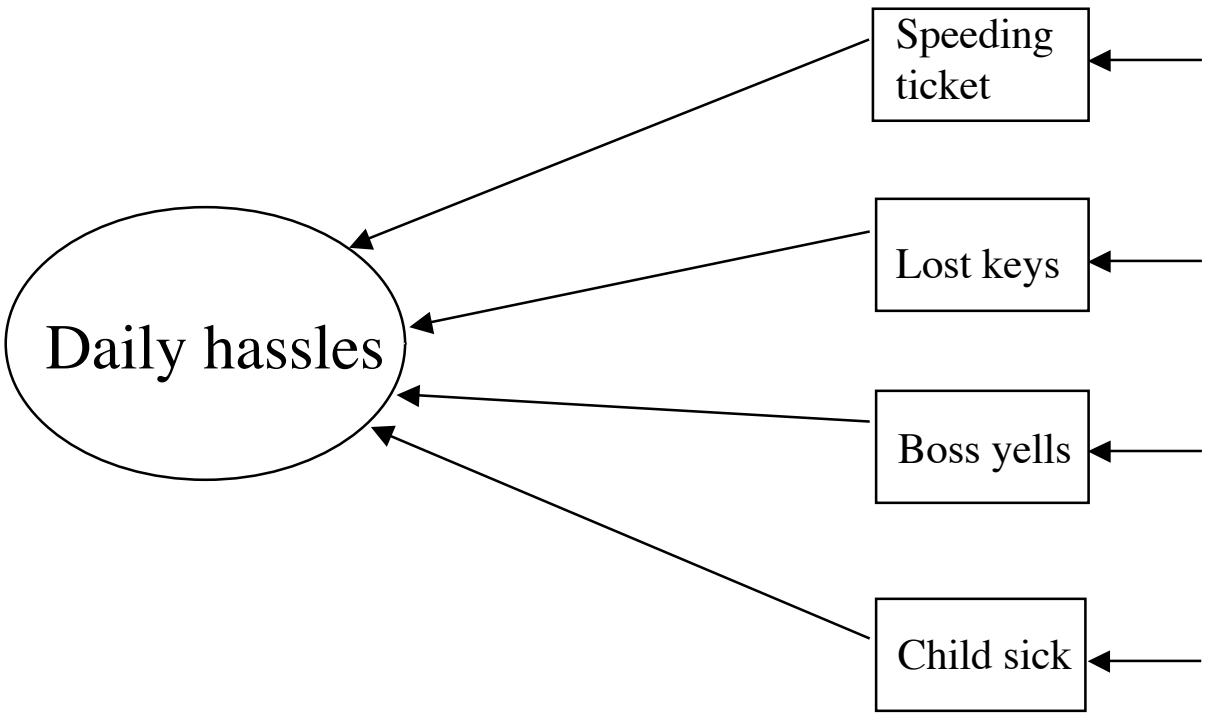
Appropriateness of the Model

- FA assumes a particular causal model
  - » Unmeasurable factors cause measured variables
  - » All variance shared between variables is due to the factors they have in common



A Different Model

- Sometimes a different model is clearly appropriate
- E.g., sometimes it's more plausible that the causal flow is in the opposite direction
  - » daily hassles



Adequacy of Items

- Structure uncovered by FA depends critically on which items were included
- Factors can't emerge unless appropriate items are included
- Example: Emotions
  - » theory and past research suggests that fear and anger are unique emotions
  - » factor analysis with impoverished item set collapses the two

Rotated Factor Matrix

	Factor	
	1	2
happy	.896	
joyful	.807	
pleased	.802	
delighted	.791	
cheerful	.712	
elated	.689	
fearful		.814
angry	-.312	.501
afraid		.485

Adequacy of Items - cont.

- Spurious factors can also emerge
- Emotions example
  - » Forcing a 3-factor solution splits the happiness factor in two

Rotated Factor Matrix[a]

	Factor		
	1	2	3
pleased	**.898**	.239	
elated	**.735**	.207	
delighted	**.680**	.418	
cheerful	.252	**.843**	
happy	.572	**.709**	
joyful	.562	**.573**	
fearful			**.818**
angry	-.235		**.505**
afraid			**.488**

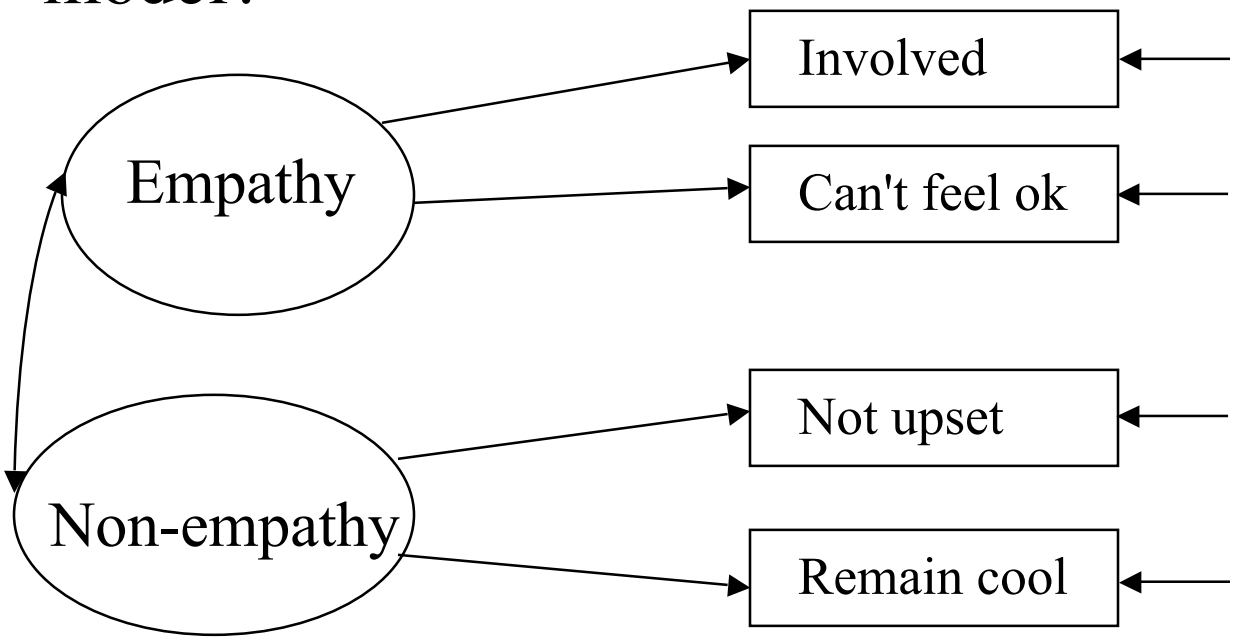
Extraction Method: Maximum Likelihood.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

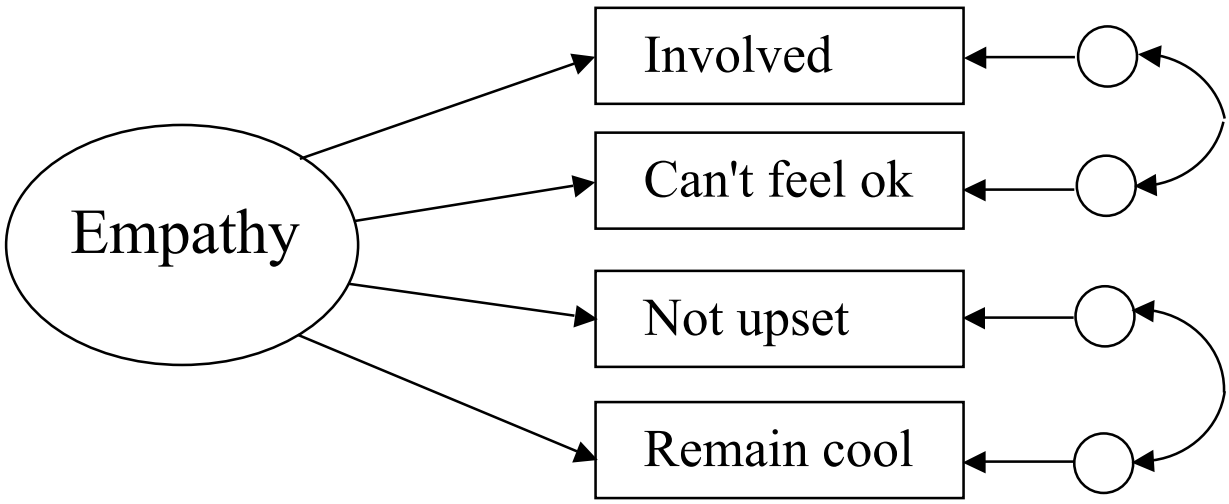
Theoretical Meaning of Factors

- Sometimes reliable, but uninteresting, factors emerge
- Common example -- positively vs. negatively worded items
- Example: Empathy scale (Mehrabian & Epstein)
  - » Positively worded
    - I tend to get emotionally involved with a friend's problems
    - I cannot continue to feel OK if people around me are depressed
  - » Negatively worded items
    - I don't get upset just because a friend is acting upset
    - I often find that I can remain cool in spite of the excitement around me

Example - Spurious Factors

- What is the most plausible underlying model?



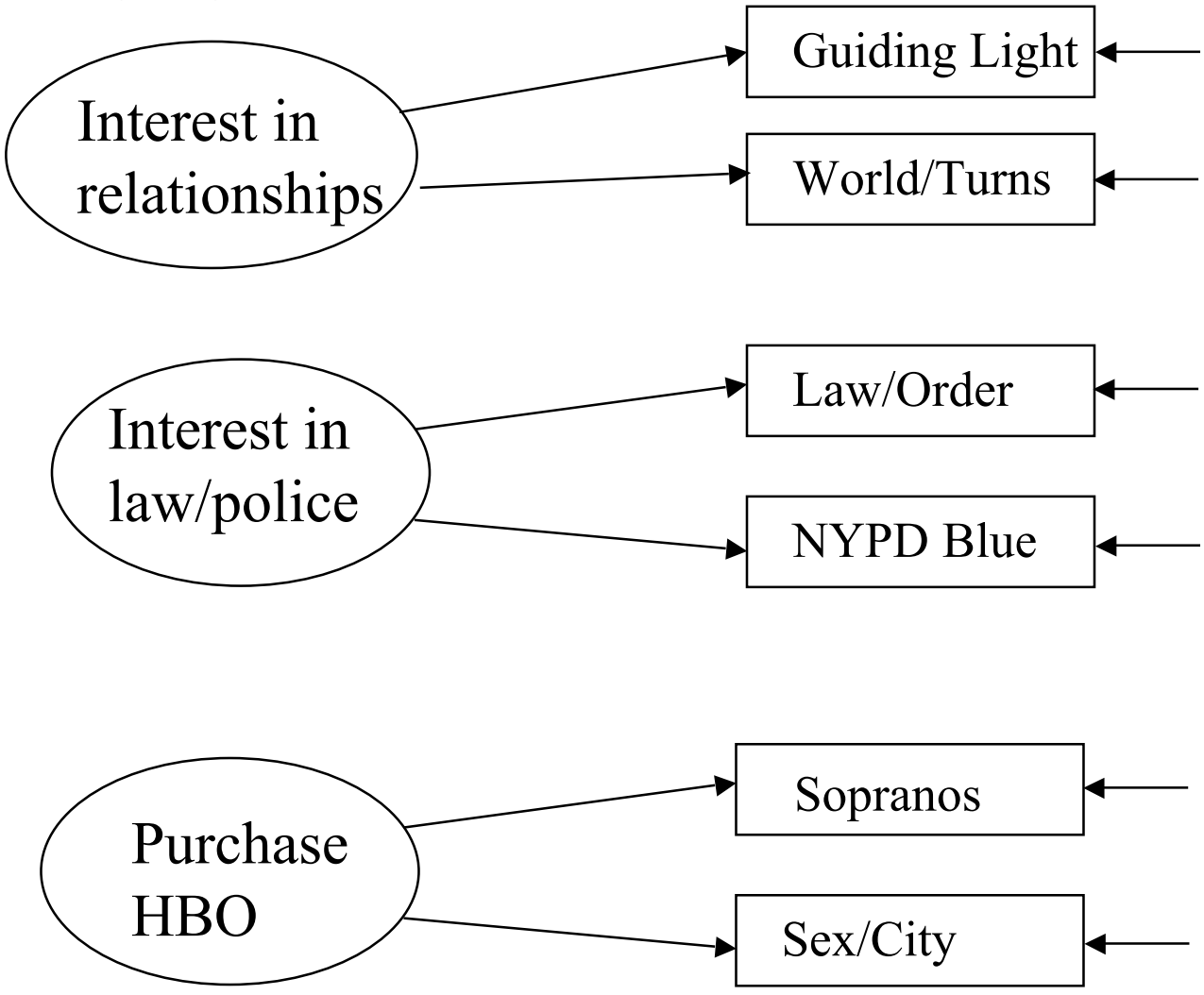


Another Example

- Research question: Effect of television sex and/or violence on behavior
- Participants report frequency of viewing several dozen programs
- Factor analysis results:
  - » F1: Law/Order, NYPD Blue, Practice, Third Watch
  - » F2: Jerry Springer, Simpsons, South Park
  - » F3: 7th Heaven, Dawson's Creek, Felicity
  - » F4: ER, Judging Amy, Providence, Touched/Angel, West Wing
  - » F5: All My Children, General Hospital, One Life to Live
  - » F6: As World Turns, Young/Restless, Guiding Light
  - » F7: Sex and the City, Sopranos

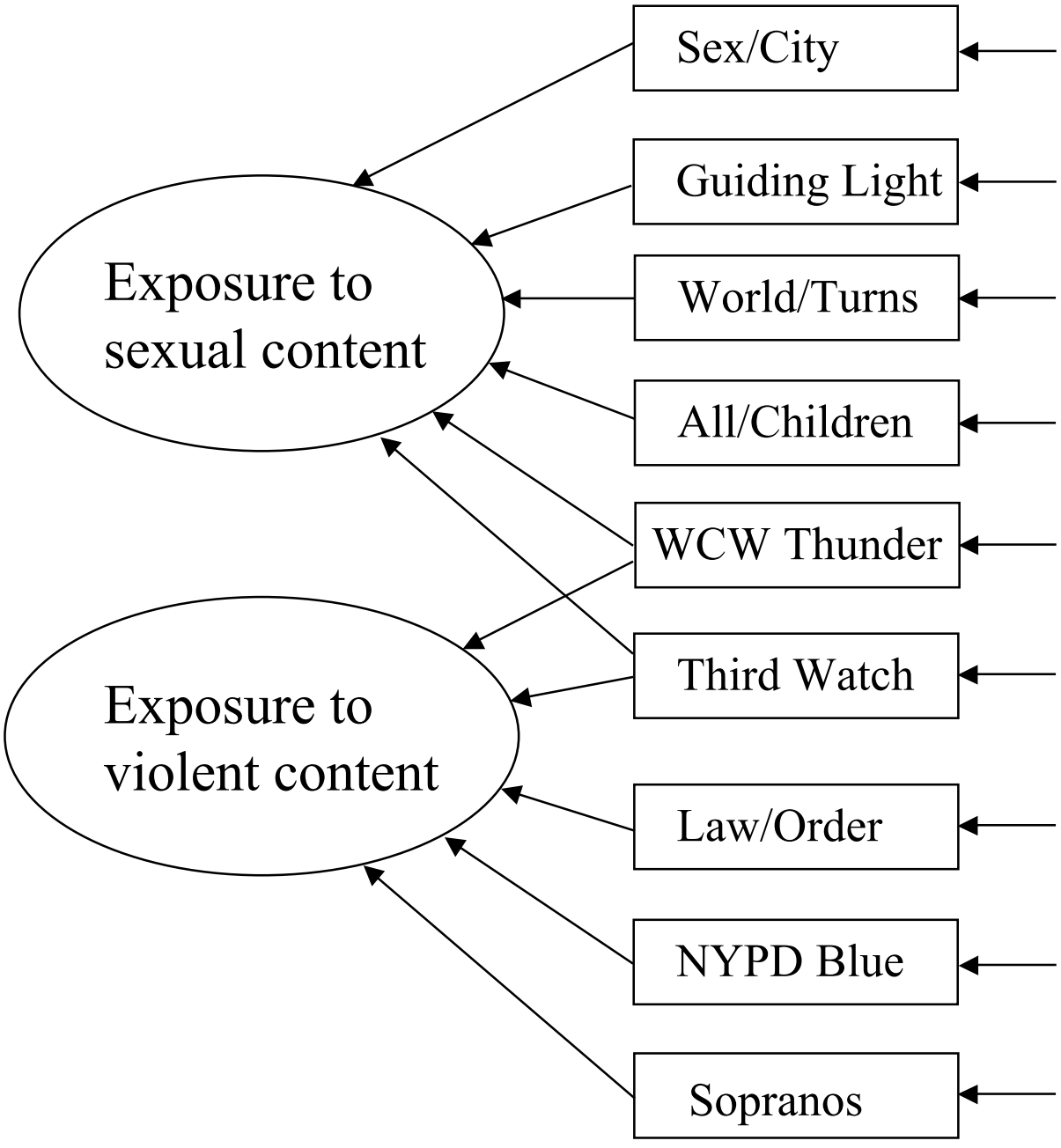
Common Factor Model of TV Viewing

- Does the common factor model make sense?



Alternative Model of TV Viewing

- Better fit with our hypotheses/interests



APA Manual: Presenting Results

- "sufficient set of statistics" (p. 33)
    - Descriptives: means and SDs of factors (and maybe of items)
- "Sufficient detail to justify your conclusions" (p. 32)
    - » ideally, correlation or covariance matrix of items
    - » may take up too much space, especially if scale construction was not your main goal
- Provide a measure of effect size (p. 34)
    - » factor loadings
    - » could also report overall % var explained, % var explained for each item
- Capitalize names of factor (p. 104)
    - » "Mealtime Behavior (Factor 4)"
    - » "Factors 6 and 7"
    - » but, "Big Five personality factors"

APA Manual: Sample EFA

Table 5.3. Sample Factor Loadings Table (With Rotation Method Specified)
The following table is formatted to emphasize the structure of the test batteries.

Table X

Factor Loadings for Exploratory Factor Analysis With Varimax Rotation of Personality Pathology Scales

Scale	Introversion	Emotional Dysregulation	Peculiarity
SPQ Constricted Affect	**.77**	.33	.21
Excessive Social Anxiety	**.43**	**.52**	.29
Ideas of Reference	−.08	.17	**.67**
No Friends	**.84**	.19	.13
Odd Beliefs	−.03	.13	**.50**
Odd Behavior	.23	.19	**.56**
Odd Speech	.15	.34	**.56**
Unusual Perceptions	.09	.14	**.76**
DAPP Submissiveness	.24	**.70**	.11
Cognitive Distortion	.26	**.70**	.36
Identity Problems	**.52**	**.58**	.18
Affective Lability	.11	**.73**	.34
Restricted Expression	**.69**	.31	.02
Passive Oppositionality	.25	**.70**	.12
Intimacy Problems	**.63**	.18	.03
Anxiousness	.24	**.83**	.18
Conduct Problems	.27	.10	.24
Suspiciousness	.39	.36	.23
Social Avoidance	**.59**	**.67**	.10
Insecure Attachment	.04	**.58**	.26
Self-Harm	.30	.38	.28
Chapman Magical Ideation	.12	.17	**.72**
Social Anhedonia	**.78**	.04	.26
Perceptual Aberrations	.12	.25	**.49**
Physical Anhedonia	**.61**	.05	−.15

Note. Factor loadings > .40 are in boldface. SPQ = Schizotypal Personality Questionnaire; DAPP = Dimensional Assessment of Personality Pathology—Basic Questionnaire.

APA Manual: Sample EFA

Table 5.3. Sample Factor Loadings Table (continued)
The following table is formatted to emphasize the structure of the factors.

Table X

Factor Loadings for Exploratory Factor Analysis With Varimax Rotation of Personality Pathology Scales

Scale	Introversion	Emotional Dysregulation	Peculiarity
SPQ No Friends	**.84**	.19	.13
Chapman Social Anhedonia	**.78**	.04	.26
SPQ Constricted Affect	**.77**	.33	.21
DAPP Restricted Expression	**.69**	.31	.02
DAPP Intimacy Problems	**.63**	.18	.03
Chapman Physical Anhedonia	**.61**	.05	−.15
DAPP Social Avoidance	**.59**	**.67**	.10
DAPP Identity Problems	**.52**	**.58**	.16
SPQ Excessive Social Anxiety	**.43**	**.52**	.29
DAPP Anxiousness	.24	**.83**	.18
DAPP Affective Lability	.11	**.73**	.34
DAPP Cognitive Distortion	.26	**.70**	.36
DAPP Passive Oppositionality	.25	**.70**	.12
DAPP Submissiveness	.24	**.70**	.11
DAPP Insecure Attachment	.04	**.58**	.26
DAPP Self-Harm	.30	.38	.28
SPQ Unusual Perceptions	.09	.14	**.76**
Chapman Magical Ideation	.12	.17	**.72**
SPQ Ideas of Reference	−.08	.17	**.67**
SPQ Odd Speech	.15	.34	**.56**
SPQ Odd Behavior	.23	.19	**.56**
SPQ Odd Beliefs	−.03	.13	**.50**
Chapman Perceptual Aberrations	.12	.25	**.49**
DAPP Suspiciousness	.39	.36	.23
DAPP Conduct Problems	.27	.10	.24

Note. Factor loadings > .40 are in boldface. SPQ = Schizotypal Personality Questionnaire; DAPP = Dimensional Assessment of Personality–Basic Questionnaire. Adapted from "A Dimensional Model of Personality Disorder: Incorporating *DSM* Cluster A Characteristics," by J. L. Tackett, A. L. Silberschmidt, R. F. Krueger, and S. R. Sponheim, 2008, *Journal of Abnormal Psychology, 117*, p. 457. Copyright 2008 by the American Psychological Association.

Sample Table

- All loadings printed (Oishi et al., 1999, J. Persy)

Appendix A

Principal Axis Factor Analysis of the Satisfying Activity Scale With Varimax Rotation

Items	F1	F2	F3	F4	F5
Benevolence/Conformity (α = .74)					
Showing that you care about others	.65	.11	.23	.07	.10
Following rules set by a group you belong to	.65	.12	−.08	.18	−.23
Agreeing and following other's suggestion/opinion	.64	.03	.16	.03	.01
Caring about friends and family	.59	.13	.20	.04	.20
Doing what parents want you to do	.45	.19	.06	.10	−.03
Forgiving other's mistake	.44	.07	.25	−.08	.02
Achievement (α = .79)					
Making a long-term plan	.32	.69	−.08	.13	.04
Making a conscious effort to achieve your goals	−.01	.68	.18	.09	−.06
Deciding what you want to do in the future	.38	.64	−.06	.02	−.07
Choosing your own goals	.00	.57	.12	.09	.05
Studying to get good grades	.32	.56	.15	.12	−.24
Universalism (α = .77)					
Attending a rally to support conservation of nature	.09	.00	.74	−.03	.02
Participating in a fund-raising for people and families with AIDS	.09	.05	.73	.05	.01
Recycling bottles, old newspapers, and office papers	.29	.08	.60	−.01	−.11
Doing a volunteer work	.23	.22	.57	.01	.10
Power (α = .65)					
Buying expensive clothes	.13	.19	−.04	.75	.18
Making a lot of money	−.01	.04	−.09	.62	.01
Cleaning your room and keeping everything in order	.08	.13	.16	.47	−.11
Hedonism/Stimulation (α = .59)					
Doing homework instead of going out for fun (R)	.05	−.23	−.03	−.07	.64
Going to a loud party	.12	.04	−.02	.24	.62
Avoiding high-risk activities (R)	−.17	.06	−.01	−.25	.44
Doing different things every weekend	.06	.00	.31	.30	.42
Eigenvalue	4.27	1.90	1.53	1.18	1.00
Percent of variance explained	19.4	8.6	6.9	5.4	4.5
Cumulative percent of variance explained	19.4	28.0	35.0	40.4	45.0

Sample Table

- Small loadings not printed (Roberts & Robins, 2000, PSPB)

TABLE 1: Factor Structure of Major Life Goals Clustered By Value Domain

	1	*2*	*3*	*4*	*5*	*6*	*7*
Economic goals							
Having a high-status career	**.89**						
Having an influential and prestigious occupation	**.83**						
Having a high standard of living and wealth	**.69**		−.33				
Having a career	**.66**			.23			
Becoming a business executive	**.50**		−.42		.36		.31
Make my parents proud	**.45**			.37			.25
Owning my own business	**.38**		−.33		.31		
Aesthetic goals							
Producing good artistic work		**.83**					
Becoming accomplished in one of the performing arts		**.77**					
Be an accomplished musician		**.70**					
Supporting artistic activities and the fine arts		**.70**					
Write good fiction and prose		**.60**			.23		
Social goals							
Working to promote the welfare of others			**.84**				
Helping others in need			**.79**				.23
Taking part in volunteer community and public service			**.75**		.25		
Relationship goals							
Having a satisfying marriage/ relationship				**.78**			
Having children				**.77**			
Having harmonious relationships with my parents and siblings				**.64**		.26	
Political goals							
Be influential in public affairs					**.84**		
Becoming a community leader			.24		**.81**		
Hedonistic goals							
Having new and different experiences						**.76**	
Having fun						**.76**	
Having an exciting lifestyle	.33					**.61**	
Religious goals							
Participating in religious activities							**.82**
Devoting attention to my spiritual life			.21				**.78**

NOTE: $N = 672$. Primary loadings are shown in bold. Loadings greater than .20 are shown.

Reporting Results in Text

- Usually results are too complex to report only in text (w/no table)
- Occasionally it works
  - » Especially appropriate if FA work is not of central interest; you don't want to highlight it
- Even with a table, in text you need to say
  - » what analysis you did (extraction and rotation methods)
  - » why you made the choices you did (how the series of analyses proceeded)
  - » it's nice to first indicate that you tested whether the data were suitable for FA

Reporting Results in Text

- Here's an example wo/a table
- Not much info about how they made decisions
  - » what does "a two-factor solution was returned" mean?

- "To determine whether the duration measure indeed was tapping something separate from the intensity measure, a principal components factor analysis with varimax rotation was performed on intensity and duration at each level of provocation. A two-factor solution was returned that explained 77.9% of the variance. The duration scores at the three provocation levels loaded strongly onto Factor 1 (.88, .93, and .82, respectively), and the corresponding intensity scores loaded strongly onto Factor 2 (.87, .95, .71). In addition, an oblique factor analysis was run to explore the possibility that the two forms of aggression would be related. The factor loadings remained largely the same, and the two factors were correlated at .21 (Beal et al., 2000, PSPB)

Sample Figure

- More useful for CFA than EFA (Finch et al., 1999, J Persy)

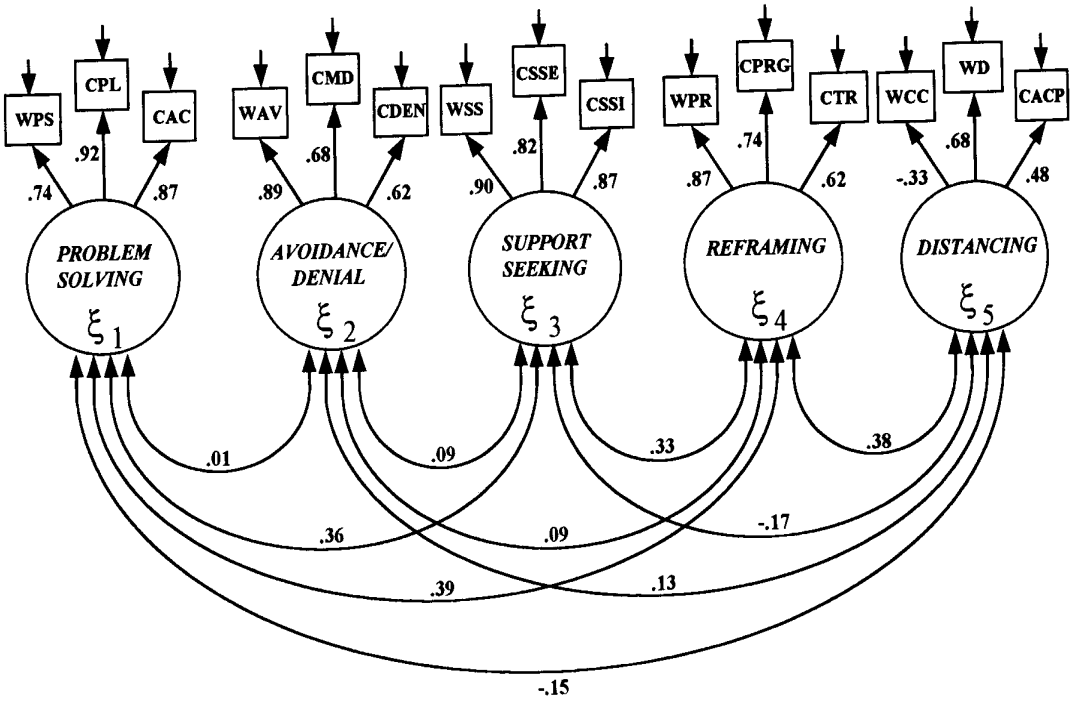


Figure 2

Confirmatory interbattery factor model of coping. Correlations among error terms associated with scales from the same battery have been omitted from the diagram.

Note: All coefficients are standardized and *p*-values for all loadings are less than .001. Factor correlations > |.14| are significant at $p < .05$.