

# UV9291 Principles of Measurement

Seminar 4

Assignment 2 - Task 3 Presentation

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# Scenario 1 - Dataset 9

- Validation of five-item scale with 7-category integer measuring satisfaction with life (SL).
- Validity evidence with respect to content has been established by considering expert opinion.
- Theoretical model:
  - SL is a unidimensional construct.
  - SL is moderately positively associated with job satisfaction (JS).
  - SL is strongly negatively associated with narcissistic personality disorder (NP).
- Dataset: item scores from 152 undergraduate students at the Department of Psychology at the University of Oslo and two established scales measuring job satisfaction.

# Task

- 1) Investigate the evidence for and against the interpretation of the sum scores of LS as measures of the constructs in the population where the scores are meant to be used.
- 2) Indicate what additional aspects should be considered in future studies.

# Procedure

- 1) Develop, fit and compare two CFA models with three latent factors based on sum scores of LS, JS and NP using likelihood ratio test.
  - a) Model 1 without restrictions (correlation between factors)
  - b) Model 2 with restriction (independence of factors).
- 2) Check covariance matrix of best model.
- 3) Check correlation between sum scores.

# Developing and Comparing Models

## Latent Factors:

LS =~ SWLS1 + SWLS2 + SWLS3 + SWLS4 + SWLS5

JS =~ JS1 + JS2 + JS3 + JS4 + JS5

NS =~ NS1 + NS2 + NS3 + NS4 + NS5 '

## Chi-Squared Difference Test

Model	Df	AIC	BIC	Chisq	Chisq diff	Df diff	Pr(>Chisq)
Model 1	87	7628.6	7728.4	98.137			
Model 2	90	7701.2	7792.0	176.809	78.672	3	< 2.2e-16 ***

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# Checking Covariance Matrix of Model 1

Covariances:

	Estimate	Std.Err	z-value	P(> z )
<b>LS ~~</b>				
<b>NS</b>	0.629	0.144	4.365	0.000
<b>JS</b>	-0.654	0.144	-4.538	0.000
<b>JS ~~</b>				
<b>NS</b>	-0.363	0.136	-2.667	0.008

The covariance matrix of the Factors is coherent with theoretical assumptions, but covariances are unstandardized.

Table also shows that there is a significant negative correlation between JS and NP, which suggests that there might be multicollinearity in the model.

# Check Pearson correlation between sum scores.

**Correlation Matrix**

	Sum LS	Sum JS	Sum NS
Sum LS	1.0	-	-
Sum JS	0.4505936	1.0	-
Sum NS	-0.5090306	-0.2281191	1.0

- Pearson Correlation is standardized.
- Theoretical assumptions of LS being moderately positively associated with Job satisfaction is consistent
- Not the case for NP being strongly negatively associated with LS. Correlation is negative, but not strong.

# Possible Suggestions for Research Project

- 1) Consider including interaction between the JS and NS factors in future studies.
- 2) Reconsider the theoretical assumptions related to Narcissistic Personality.
- 3) Assess the contribution of each item to the latent factors, in order to see if there are discriminant items.