

# Ch. 13: Clinical & Counseling

868

Psychology 402 - Spring 2022 - Dr. Michael Diehr

Copyright © 2022 Michael Diehr  
All Rights Reserved  
For use only by students enrolled  
in my sections of Psyc 402  
through the end of the semester.  
May not be posted, shared or uploaded  
online without permission.

869

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Project Proposal: Getting Help

- Examples on Website
  - APA style guide
  - Construct Example - Depression (In Ch. 13 lecture notes)
  - How to get Annual Reviews PDFs
  - and others...
- Consultation
  - Zoom discussion
  - by email
  - discussion forum

871

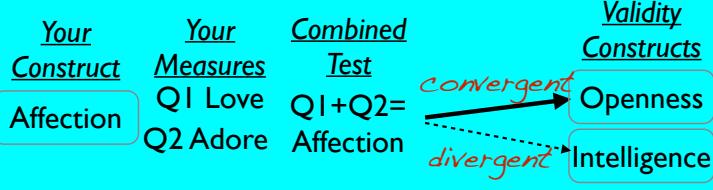
Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Overview

872

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Project Proposal



You create  
these

These are already  
on the Survey

873

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Review: Holland Typology

- Theory: personality and vocations share six main factors

Factors	Facets
Realistic	practical, physical, hands-on, tool-oriented
Investigative	analytical, intellectual, scientific, explorative
Artistic	creative, original, independent, chaotic
Social	cooperative, supporting, helping, healing/nurturing
Enterprising	competitive environments, leadership, persuading
Conventional	detail-oriented, organizing, clerical

874

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## NEO-FFI-3 Facets

Scale	Description	Facets					
<b>N</b>	<b>Neuroticism</b>	anxiety	hostility	depression	self-consciousness	impulsive-ness	vulnerability to stress
<b>E</b>	<b>Extraversion</b>	warmth	gregarious-ness	assertiveness	activity	excitement-seeking	positive emotion
<b>O</b>	<b>Openness to experience</b>	fantasy	aesthetics	feelings	actions	ideas	values
<b>A</b>	<b>Agreeable-ness</b>	trust	straight-forward-ness	altruism	compliance	modesty	tender-mindedness
<b>C</b>	<b>Conscientious-ness</b>	compe-tence	order	dutifulness	achieve-ment striving	self-discipline	delibera-tion

875

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Ch. 13: Clinical & Counseling

- Settings / Situations
- Test Types
- Test Designs
  - Deductive
    - Logical Content
    - Theoretical
    - Empirical
    - Criterion Group
    - Factor Analysis
  - Example tests

876

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Clinical and Counseling Settings

- Hospital
- Inpatient
  - acute
  - long-term
- Outpatient
- School
  - Counseling (educational)
  - Counseling (psychological)
- Vocational
- Motivational/Performance

877

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Types of Tests

- IQ & Achievement
- Personality
  - structured (“objective”)
  - unstructured (“projective”)
- Clinical
  - Diagnostic
    - Depression, Anxiety, etc.
    - Symptom checklists
  - Neuropsychological

878

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Logical Reasoning

- Deduction
  - premises → conclusion
    - All swans are white
    - Susan is a swan
    - Therefore, Susan is white
- (Empirical) Induction
  - less certain: evidence → probability
  - All of the swans we have seen are white
  - Thus, all swans are probably white

879

Psychology 402 - Spring 2022 - Dr. Michael Diehr

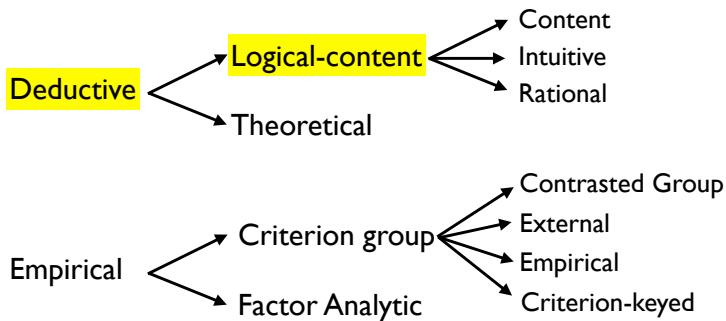
## Design Theories

- Deductive (aka “Top Down” or “Theory-driven”)
  - Use reason, clinical experience and common sense to choose test items that are face-valid.
- Empirical (aka “Bottom-Up” or “Data-driven”)
  - Look for patterns in large groups of data
  - Data tells us what factors exist
  - Don’t assume face validity

880

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Design Theories



881

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Logical-Content

- Deductive
- Logical-Content
  - aka “Content approach”, “Intuitive approach”, “Rational approach”
  - straightforward questions
    - e.g. “did you wet the bed last night?”
  - assumes subjects are honest
  - assumes *face validity*
  - Pro: simple
  - Con: simplistic, naive

882

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Logical-Content: Woodsworth

- Woodsworth Personal Data Sheet (1920)
- Developed in WWI to identify soldiers who would fail in combat
- 116 Yes/No questions
  - “Do you drink a fifth of whiskey a day?”
  - “Do you frequently daydream?”
  - ...
- All questions are Face valid
  - rarely used today
  - why?

883

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Logical-Content: Mooney

- Mooney Problem Checklist (1950)
  - yes/no to many problem items “I’m having trouble with money”
  - All questions face valid
  - Sometimes used today
    - Why?

885

Psychology 402 - Spring 2022 - Dr. Michael Diehr

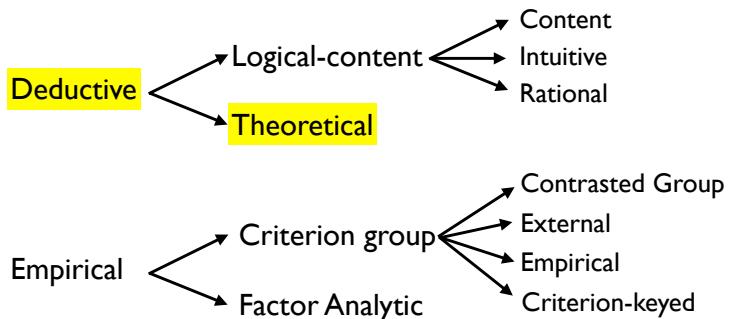
# Criticism : Logical-Content

- Major assumptions:
  - Subjects are being honest
  - Items have one objective interpretation
    - e.g. “I never drink too much alcohol”
- Assumptions are flawed
- This design rarely used post 1940

886

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Design Theories



887

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Theoretical

- Deductive
- Theoretical
  - Theory of constructs (dimensions, factors, facets, etc.) used to create test questions.
- Example (from Freud)
  - Depression =
  - **Anaclitic** (anger at parents)
    - “do you get along with Mom & Dad?”
  - **Introjective** (self loathing)
    - “do you fall short of your goals?”

888

Psychology 402 - Spring 2022 - Dr. Michael Diehr

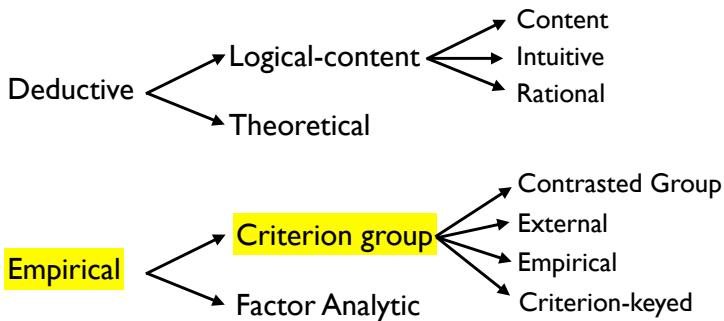
# Criticisms of Theoretical Approach

- What evidence that the theory / construct / sub-constructs exist?
- Example:
  - Depression - what theory to use?
  - Psychodynamic?
  - Cognitive?
  - Behavioral?
  - Medical?
  - Social
  - ...

889

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Design Theories



891

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Criterion-Group

- Empirical
- Criterion Group
  - aka “Contrasted Group”, “External strategy”...
  - Give test items to a group that has some disease, disorder or diagnosis (e.g. “Schizophrenics”)
  - Compare (contrast) with performance in an “normal” group
  - Items which strongly distinguish the groups are kept.
  - Cross-validate results with other group(s)

892

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Criterion-Group Example

Question	Bullies	Non-Bullies
1. It feels good to hurt others	N	N
2. I like watching Boxing	Y	Y
3. I like Hello Kitty	N	Y
4. I am always a good person	Y	Y
5. Other people are weak	Y	N

893

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Cross-Validation

- Method of giving a more fair, accurate estimate of reliability by essentially “repeating the study” with new subjects
- Use the prediction equations (formulas) on a “fresh” sample
- Guards against “over fitting” data in the first experiment (e.g. Shrinkage)
- If cross-validation groups differ in demographics, increases generalizability.

894

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Cross-Validation Example

- Researcher #1 does a study in their hospital showing that Schizophrenic patients say “Yes” to the question “I’m afraid of the color blue” at a much higher rate than control subjects.
- This test item can diagnosis Schizophrenia?
- Researcher #2 attempts to cross-validate this study at a different hospital with a different set of patients and controls, and does not find the same effect.
- Why?

895

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Criterion-Group Tests

- Strong Interest Inventory...
- MMPI...
- CPI...

896

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Strong Interest Inventory

- Select one occupation (“bartender”)
- Two samples
  - Criterion sample: people who are strongly representative (e.g. happy doing normal bartending tasks)
  - General sample: people from other occupations
- Administer test questions to both groups
- Keep only the questions that discriminate
- [Repeat this process for each different occupation...]

897

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Criterion-Group Tests

- California Psychological Inventory - 3 (CPI-3)
  - 20 scales
  - focused more on health than illness
  - psychometrics are fair, not great
- Minnesota Multiphasic Personality Inventory
  - Most popular / well researched test
  - Revisions
    - MMPI-2 : 1989; revised norms in 2003; 567 items
    - MMPI-2-RF : 2008 ; shortened to 338 items
  - 10 clinical scales
  - Focused more on psychopathology
  - Good psychometrics

898

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## MMPI Design

- Goal : detect abnormal psychology
- Subjects: Eight criterion groups (psychiatric inpatients) plus normal\* control group
- Method: Items which contrasted criterion group with normal group, AND which passed cross-validation at  $P < .05$  level were kept.
- Test items were grouped into scales, the scales were named after the criterion group
- Later: additional scales added: Mf and Si

899

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## MMPI-2

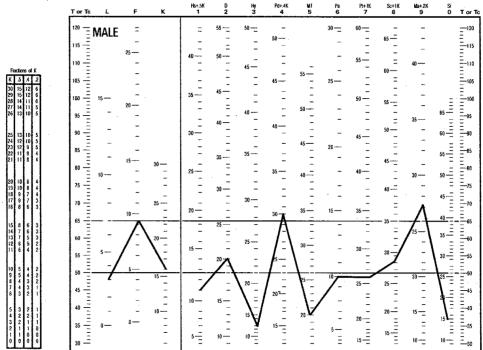
- 567 true/false items
- About 2 hours to administer
- Item content appear as face valid statements “I like mechanics magazines”
- Item scoring is not done in face-valid way.
- Each item contributes to one or more Clinical Scales or Content Scales
- Additional Validity Scales attempt to correct for response styles, faking bad or good, etc.
- Scales are normed to T-Scores (mean 50,  $sd = 10$ )

900

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# MMPI-2®

**Profile for Basic Scales**  
Minnesota Multiphasic Personality Inventory-2  
Copyright © by THE REGENTS OF THE UNIVERSITY OF MINNESOTA  
1989, 1992, 1996, 1998, 2000. Test Form 1988.  
All rights reserved. Distributed exclusively by NATIONAL COMPUTER SYSTEMS, INC. under  
license from the University of Minnesota.  
"MMPI-2" and "Minnesota Multiphasic Personality Inventory-2" are trademarks owned by  
the University of Minnesota. Printed in the United States of America.



901

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## MMPI Clinical Scales

#	Scale	Name	Interpretation
1	Hs	Hypochondriasis	physical complaints
2	D	Depression	depression
3	Hy	Hysteria	immaturity
4	Pd	Psychopathic Deviate	authority conflict
5	Mf	Masculinity-Femininity	stereotypic m/f interests
6	Pa	Paranoia	suspicion, hostility
7	Pt	Psychasthenia	anxiety
8	Sc	Schizophrenia	alienation, withdrawal
9	Hy	Hypomania	elevated mood & energy
0	Si	Social Introversion	introversion, shyness

903

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## MMPI Validity

- Thousands of studies have been done on the MMPI supporting its Construct validity
- Used and researched in a very wide range of subjects, settings, disorders.

905

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## MMPI Validity Scales

#	Scale	Name	Interpretation
1	L	Lie scale	naive attempt to fake good
2	F	F scale	“Frequency” scale: attempt to fake bad
3	K	K scale	(sophisticated) defensiveness
4	VRIN	Variable response inconsistency	random responding
5	TRIN	True response inconsistency	“yes” bias

902

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# MMPI Psychometrics

- Reliability is good but not as high as the best tests (such as IQ tests)
- Test-retest correlations  $r=0.50$  to  $0.90$ , mean  $\sim 0.80$
- Scales poorly designed -- some items on multiple scales  $\rightarrow$  scales are highly intercorrelated
- Questions poorly designed: (all items on the L scale are keyed False)  $\rightarrow$  sensitive to response style
- Scores are correlated to demographics (age, gender, IQ, ethnicity...)

904

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Criticism : Criterion-Group

- Major assumptions:
  - People/Patients can be grouped, groups show consistent features and are independent
  - Face validity of response is not important, but responses should be consistent
  - Scales can predict membership in criterion group
- Flaws:
  - Criterion group assumes a lot about patterns of behavior. Neglects possible commonalities across groups.
  - Time-consuming and expensive to create tests

906

Psychology 402 - Spring 2022 - Dr. Michael Diehr

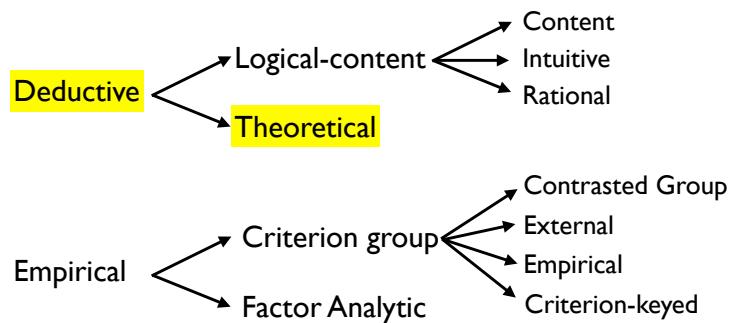
## Project Example: Measuring Depression

- Theory
- Measurement
- Reliability / Validity

907

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Design Theories



908

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Theory & Construct, Measures

- Theories:
  - Psychodynamic
  - Modern CBT
- Measures
  - BDI-II
  - HAM-D

909

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Getting a Review Article

- The Hard Way
  - [library.csusm.edu](http://library.csusm.edu)
  - search PsycINFO for 'depression'
    - about 200,000 hits
    - choose: methodology = literature review
      - about 9000 hits
  - Browse through results
  - Ouch!

910

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Getting a Review Article

- The Easy Way
  - [annualreviews.org](http://annualreviews.org)
  - select Journals / Psychology
  - search for 'Depression / In This Journal'
    - 600 results
    - more relevance

911

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Depression : the Construct

- Examples of different theories and ways to define the construct of 'depression'

912

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Psychodynamic Theory of Depression

- depression = inverted hostility
- Angry at parents, but parents needed for survival
- “anger turned inward”
- “self hatred”

913

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Psychodynamic Theory of Depression

- Subtypes (Factors):
- *Anaclitic depression* : (perceived) loss of relationships one depends on
  - Facets: helpless, fears of abandonment, separation anxiety
- *Introjective depression* : failure to meet own standards (harsh superego)
  - Facets: worthlessness, guilt, feelings of failure

914

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Depression-modern theory

- Psychological (Emotional, Cognitive)
- Biological

915

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Depression-modern theory

- Psychological
  - depressed mood
  - anhedonia
  - poor concentration
  - ruminations (guilt, worthlessness)
  - suicidal ideation
- Cognitive Triad - negative thoughts:
  - about the world
  - about the future
  - about the self

916

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Depression-modern theory

- Biological:
  - weight change: unintentional loss or gain
  - sleep disturbances
  - psychomotor agitation or retardation
  - loss of energy

917

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## DSM-5 : Major Depressive Episode

- 5 or more for 2 week period, must include (\*)
  - \*Depressed mood most of most days
  - \*Anhedonia
  - Significant weight gain or loss (5%/month)
  - Insomnia/hypersomnia
  - Psychomotor retardation/agitation
  - Fatigue/loss of energy
  - Worthless/guilty feelings
  - Trouble concentrating or indecisiveness
  - Suicidal ideation, plans, attempts

918

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Narrow down Topic

- Review Article
  - Field / Subfield
  - Clinical Psychology / Depression
- Refine / choose specific Construct
  - a sub-topic
  - theory
  - method
- Find an Original Research Article

919

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Original Research Article

- The hard(er) way:
- PsycINFO
  - search PsycINFO for keywords
  - e.g. “depression” + “stress”
    - 10,000 hits
  - e.g. “depression” + “anaclitic”
    - 150 hits
- *If your construct is narrow, this method may work OK*

920

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Original Research Article

- From your Review article, find the discussion of your Sub-Topic / Construct. It will have References
  - many references will be Original Research articles
  - find these articles
- Search for a specific measure of your construct.
- Web search for “self-report measure of \_\_\_\_\_”

921

Psychology 402 - Spring 2022 - Dr. Michael Diehr

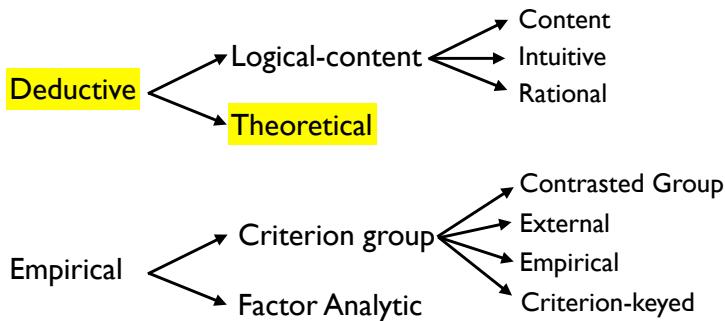
## Project Proposal - Outline

- Jump to Outline

922

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Design Theories



926

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Sample Constructs & Measures

- BDI
- HAM-D (HRSD)

927

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Beck Depression Inventory

- Aaron T Beck - Psychiatrist (with cognitive focus)
- BDI (1961), BDI-1A (1976)
- BDI-II (1996) - in response to DSM-IV
- 21 item self report
- 0-3 points per item
- Scoring
  - 0-9 minimal depression
  - 10-18 mild depression
  - 19-29 moderate depression
  - 30-63 severe depression

928

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# BDI-II

	Beck Depression Inventory	Baseline
V 0477	CRTN: _____	CRF number: _____
<b>BDI-II</b>		Page 14
		patient initis: _____
		Date: _____

Name: \_\_\_\_\_ Marital Status: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_  
Occupation: \_\_\_\_\_ Education: \_\_\_\_\_

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness	6. Punishment Feelings
0 I do not feel sad. 1 I feel sad much of the time. 2 I am sad all the time. 3 I am so sad or unhappy that I can't stand it.	0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.
2. Pessimism	7. Self-Distrust
0 I am not discouraged about my future. 1 I feel more discouraged about my future than I used to be. 2 I do not expect things to work out for me. 3 I feel my future is hopeless and will only get worse.	0 I feel the same about myself as ever. 1 I have lost confidence in myself. 2 I am disappointed in myself. 3 I dislike myself.
8. Self-Criticalness	

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## BDI-II Questions

Sadness	Self-Criticalness	Loss of Energy
Pessimism	Suicidal Thoughts	Sleep Changes
Past Failure	Crying	Irritability
Loss of Pleasure	Agitation	Appetite
Guilty Feelings	Loss of Interest	Concentration
Punishment Feelings	Indecisiveness	Fatigue
Self-Dislike	Worthlessness	Interest in Sex

930

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## BDI-II Psychometrics

- Test-retest:  $r = 0.93$
- Cronbach's Alpha = 0.91
- Correlation with HAM-D :  $r = 0.71$

931

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## HAM-D aka HRSD

- Hamilton Rating Scale for Depression
- Max Hamilton - Psychiatrist 1912-1988
- 17 item clinician rating
- 0-7 rating for each question
- Scoring:
  - 0-7 : normal
  - 8-13 : Mild
  - 14-18 : Moderate
  - 19-22 : Severe
  - 23+ : Very Severe

932

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## HAM-D

### Hamilton Depression Rating Scale (HDRS)

PLEASE COMPLETE THE SCALE BASED ON A STRUCTURED INTERVIEW

Instructions: for each item select the one "cue" which best characterizes the patient. Be sure to record the answers in the appropriate spaces (positions 0 through 4).

<b>1 DEPRESSED MOOD</b> (sadness, hopeless, helpless, worthless)	<b>2 FEELINGS OF GUILT</b>
0 <input type="checkbox"/> Absent.	0 <input type="checkbox"/> Absent.
1 <input type="checkbox"/> These feeling states indicated only on questioning.	1 <input type="checkbox"/> Self reproach, feels he/she has let people down.
2 <input type="checkbox"/> These feeling states spontaneously reported verbally.	2 <input type="checkbox"/> Ideas of guilt or rumination over past errors or sinful deeds.
3 <input type="checkbox"/> Communicates feeling states non-verbally, i.e. through facial expression, posture, voice and tendency to weep.	3 <input type="checkbox"/> Present illness is a punishment. Delusions of guilt.
4 <input type="checkbox"/> Patient reports virtually only these feeling states in his/her spontaneous verbal and non-verbal communication.	4 <input type="checkbox"/> Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations.

28

933

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## HAM-D Questions

Depressed Mood	Retardation	Hypochondriasis
Feelings of Guilt	Agitation	Weight Loss
Suicide	Anxiety: Psychic	Insight
Insomnia: Early	Anxiety: Somatic	
Insomnia: Middle	Appetite	
Insomnia: Late	General Somatic Sx	
Work/Activities	Genital Symptoms	

934

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## HAM-D Psychometrics

- Often considered the “Gold Standard”
- Criticized for not being “Gold Standard”
- Bagby, Ryder et al (2004)
  - Pros:
    - test-retest:  $r = 0.81$  to  $0.98$
    - Cronbach’s alpha:  $r = 0.48$  to  $0.92$
    - inter-rater:  $r = 0.65$  to  $0.98$

935

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## HAM-D Psychometrics

- Cons:
  - poor item characteristics
  - “Most of the items still measure multiple constructs, items that have consistently been shown to be ineffective have been retained, and the scoring system still includes differential weighting of items...”

936

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factors?

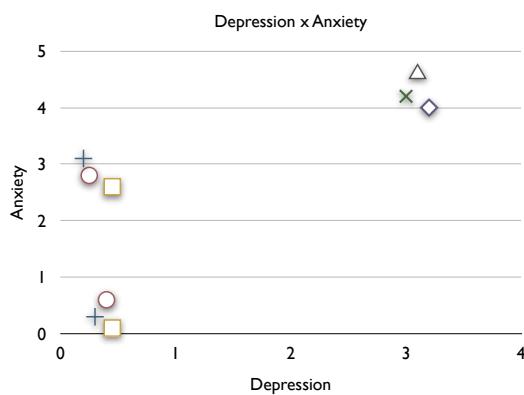
- What if you don’t know what the factors are?

937

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Empirical Analysis

Multivariate data often appears to form natural groups

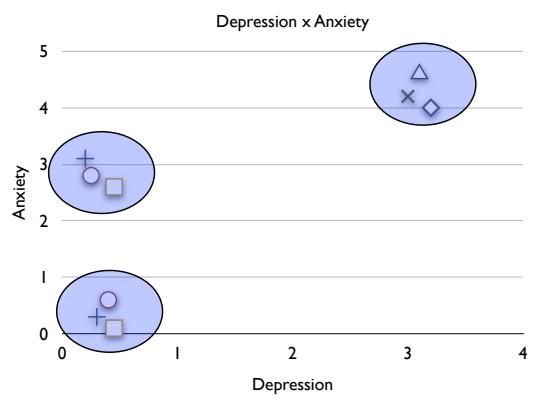


938

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Empirical Analysis

“Natural” groupings in data are determined statistically

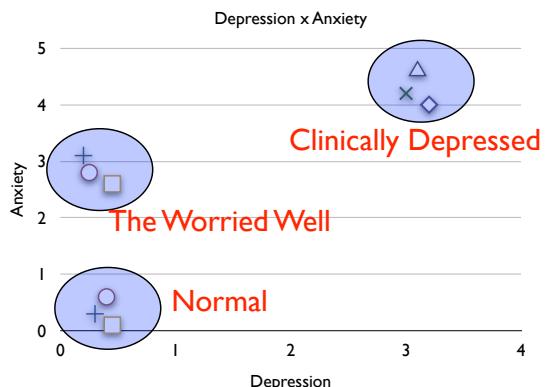


939

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Empirical Analysis

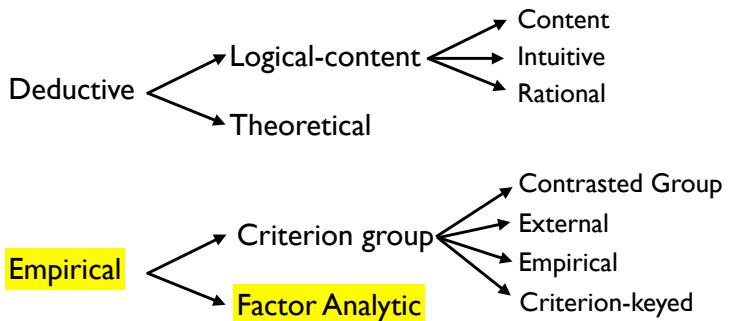
Groups are then named using logical/content analysis



940

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Review : Design Theories



941

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factor-Analytic

- Empirical
- Factor-Analytic
  - Ignore face-validity, content-validity or criterion-group
  - Look for natural patterns in the data
  - Assume patterns are meaningful (not random)
  - Reduce redundant variables
  - Examine the content, name the factors

942

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factor Analysis

- Patterns within correlation matrix
- Compute *Factors* which account for maximum variance
- Factors: How many? Naming them?

### Correlation Matrix

Measure	Factor 1	Factor 2
Love	<b>0.75</b>	0.17
Like	<b>0.87</b>	0.05
IQ	-0.02	<b>0.65</b>
GPA	0.10	<b>0.91</b>

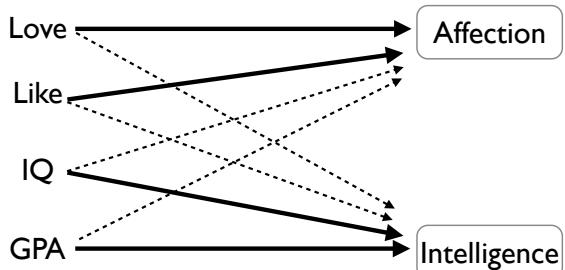
944

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Validity & Factor Analysis

- Convergent Validity : strong correlation
- Divergent Validity: weak correlation

### Measurement



945

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factor Analytic Tests

- 16PF...
- Big 5...
- NEO...

946

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factor-Analytic : 16PF

- Cattell's 16 Personality Factor Questionnaire (16PF)
  - 4504 traits chosen from dictionary, reduced to 171 traits.
  - These 171 items given to college students
  - Factor Analysis reduced these to 16 distinct factors (with 4-5 higher factors)
  - Extensive norms for age, gender, reading level, etc.
  - Similar test available for adolescents and children

947

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## 16PF Factors

Scale	Name	Low	High
A	Warmth	cool, reserved	warm, outgoing
B	Reasoning	concrete, dull	abstract, bright
C	Emotional Stability	affected by feelings	emotionally stable
E	Dominance	submissive, humble	dominant, assertive
F	Liveliness	sober, restrained	enthusiastic, spontaneous
G	Rule-Consciousness	expedient, indulgent	conscientious, conforming
H	Social Boldness	shy, timid	bold, venturesome
I	Sensitivity	tough-minded	tender-minded, sensitive
L	Vigilance	trusting, easy going	suspicious, skeptical
M	Abstractedness	practical, down to earth	imaginative, absent-minded
N	Privateness	forthright, genuine	shrewd, calculating
O	Apprehension	self-assured, secure	apprehensive, insecure
Q1	Openness to Change	conservative, traditional	experimenting, liberal
Q2	Self-Reliance	group-oriented, joiner	self-sufficient, resourceful
Q3	Perfectionism	undisciplined, lax	controlled, compulsive
Q4	Tension	relaxed, tranquil	tense, frustrated

948

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Criticism : Factor-Analytic

- Major assumptions:
  - Data patterns (factors) are stable
  - Factors can be named from question content
- Flaws:
  - Factor analysis allows multiple solutions
  - # of factors is arbitrary (16 or 5 or 4?)
  - Naming factors : face-valid examination of data

949

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factor-Analysis

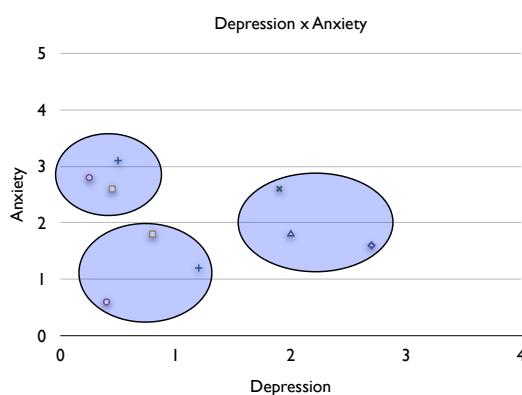
- MMPI-2 has 10 scales
- Factor analysis of MMPI-2 suggests only 2 major factors:
  - “positive affectivity”
  - “negative affectivity”
- How many factors are there really?

950

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Factor Analysis

# of groups, and group boundaries can be arbitrary

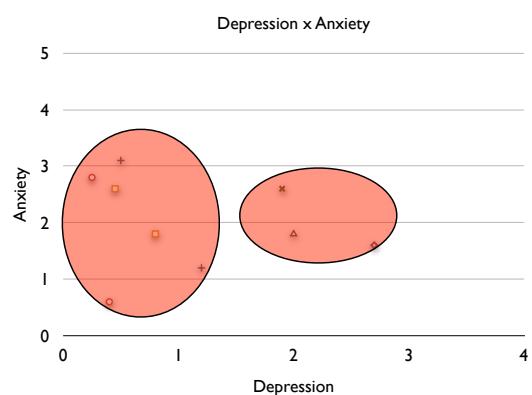


951

Psychology 402 - Spring 2022 - Dr. Michael Diehr

3 groups?  
Or only two?

## Factor Analysis



952

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## The “Big 5”

- Many researchers find 3 to 5 personality factors a good balance
- The 16PF factors reduce to 4 (or 5) bigger factors

954

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## Big 5 Personality Factors

Scale	Description
N	Neuroticism
E	Extraversion
O	Openness to experience
A	Agreeableness
C	Conscientiousness

955

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## NEO Personality Inventory

- MMPI : psychopathology in abnormal subjects
- NEO: “positive psychology” - health & style in normal subjects
- Versions
  - NEO : 3 factors (N,E,O)
  - NEO-PI: 5 factors (N,E,O, A,C)
  - NEO-PI-R
  - NEO-FFI (60-item version of NEO-PI-R)
  - NEO-PI-3
  - NEO-FFI-3 (the version you took)
  - The NEO Five-Factor Inventory-3: Four-Factor Version (NEO-FFI-3:4FV)

956

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## NEO Facets

Scale	Description	Facets						
		N	Neuroticism	anxiety	hostility	depression	self-consciousness	impulsive-ness
E	Extraversion	warmth	gregarious-ness	assertivene-ss	activity	excitement-seeking	positive emotion	
O	Openness to experience	fantasy	aesthetics	feelings	actions	ideas	values	
A	Agreeableness	trust	straight-forward-ness	altruism	compliance	modesty	tender-mindedness	
C	Conscientiousness	compe- tence	order	dutifulness	achieve- ment striving	self- discipline	delibera- tion	

957

Psychology 402 - Spring 2022 - Dr. Michael Diehr

## NEO Facets - Detail

### Facets of the Big Five

NEO PI-R Facet	IPIP Scale Name	High/low example items fr
<b>Conscientiousness</b>		
Competence	Self-efficacy	complete tasks successfully/m
Order	Orderliness	like order/leave a mess
Dutifulness	Dutifulness	follow the rules/break rules
Achievement-striving	Achievement-striving	work hard/do just enough to
Self-discipline	Self-discipline	get chores done right away/w
Deliberation	Cautiousness	avoid mistakes/rush into thin

Neuroticism (Emotional Stability)

## NEO-FFI-3 Scoring

- For each column (N,E,O,A,C), circle the RAW score.
- The T-score is then on the very left

Female						
T	N	E	O	A	C	
≥75	≥42	≥45	≥45	48		
74	41	44	44			
73	40	43		47	48	
72						
71	39	42				
70	38					
69	37	41				
68						
67	36	40		44		
66	35	39	39	43	43	

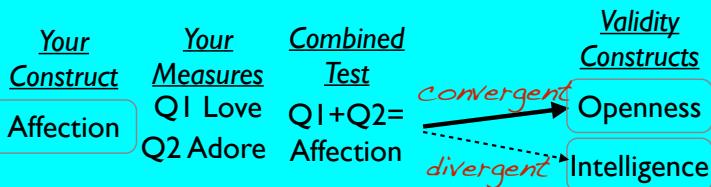
T-score

Raw  
Score

959

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Project Proposal



You create these

These are already on the Survey

960

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Project Proposal : FAQ - Part 1

- Articles : 1 Review, 1 Research
- Review article doesn't have to be [AnnualReviews.org](https://www.annualreviews.org)
- Your construct
  - does not have to have Cog, Emo, Bio dimensions (like my Anxiety example)
  - 2 test items (must be same *construct* but should measure two different *factors* of the construct)
- Measuring Reliability
  - which type?

961

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Project Proposal : FAQ - Part 2

- Measuring Reliability?
- Anxiety
- Factor 1: *cognitive anxiety*
  - I can't stop obsessing about bad things that might happen in the future. Rating scale: 1 (never) to 10 (always)
- Factor 2: *physical anxiety*
  - When I worry, I feel my heart racing. Likert: SA, A, N, D, SD

962

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Reliability: errors & methods

	Description	Name	Statistic
Time Sampling	1 test given two times	test-retest reliability	correlation between scores at two times
Item Sampling	2 different tests given once	Alternate or Parallel forms	correlation between scores on 2 versions
Internal Consistency	One test, multiple items	Split Half or internal reliability	Cronbach's Alpha
Observer Differences	One test w/ 2+ observers	inter-observer reliability	Kappa

963

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Project Proposal : FAQ - Part 3

- Increasing Reliability
  - Add scores together to make combined score
  - Reverse coding?

(1) I am not a worrier

1	4	3	2	1	0
6	0	1	2	3	4
11	0	1	2	3	4
16	4	3	2	1	0

964

(6) At time I have felt bitter and resentful

# Project Proposal : FAQ - Part 4

- Validity: Convergent & Divergent
  - you pick 2 other constructs
  - already on survey (GPA, NEO-FFI factors)
  - or... work with another student
- Convergent
  - should correlate strongly (+ or -) with your combined measure
- Divergent
  - should not correlate at all (close to zero)

965

Psychology 402 - Spring 2022 - Dr. Michael Diehr

# Project Proposal - APA style

- [Jump to APA Style](#)