

# Pitfalls and challenges in the development of treatment programs for forensic psychiatric patients

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## An effective improvement of patient care (Grol & Wensing, 2010)

- **Determinants**
- **Development**
- **Implementation**
- **Evaluation**



# A treatment program for violent forensic psychiatric patients

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- **Development of program (short version)**
- **Program implementation**
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- **Evaluation of program (long version)**



# Measurement instruments



## Measurement instruments for program evaluation

**Scores available for all patients:**

- **Psychopathy Checklist-Revised (PCL-R):  
Psychopathy**

**New assessment instruments:**

- **Adapted version of Rosenzweig Picture-Frustration Study (PFS-AV): Hostility**
- **Observation Scale for Aggressive Behavior (OSAB):  
Behavior on the ward**



## Psychopathy Checklist-Revised (PCL-R)

**PCL-R assesses psychopathy: A construct characterized by affective and interpersonal deficits and antisocial behavior**

**Use of PCL-R scores:**

- **Predictor of aggression (e.g., Walters, 2003)**
- **Predictor of recidivism (e.g., Hildebrand, De Ruiter & De Vogel, 2004)**
- **Distinction between reactive and proactive aggression (e.g., Blair, 2003)**



## **Psychopathy Checklist-Revised (Hare, 1991; 2003)**

- **20 items, rated as follows:**
  - 0 = does not apply**
  - 1 = applies to some extent**
  - 2 = applies**
- **Total score: 0- 40**
- **Cut-off score for psychopathy = 26**
- **Scores were based on file studies. Can be used for research purposes if files are of high quality (Grann et al., 1998; Hare, 1998; Blair, 2005).**





## **PCL-R items**

- 1. Glibness / Superficial charm**
- 2. Grandiose sense of self-worth**
- 3. Need for stimulation / Proneness to boredom**
- 4. Pathological lying**
- 5. Conning / Manipulative**
- 6. Lack of remorse or guilt**
- 7. Shallow affect**
- 8. Callous / Lack of empathy**
- 9. Parasitic lifestyle**
- 10. Poor behavioral controls**



## **PCL-R items**

- 11. Promiscuous sexual behavior**
- 12. Early behavioral problems**
- 13. Lack of realistic, long-term goals**
- 14. Impulsiveness**
- 15. Irresponsibility**
- 16. Failure to accept responsibility for own actions**
- 17. Many short-term marital relationships**
- 18. Juvenile delinquency**
- 19. Revocation of conditional release**
- 20. Criminal versatility**



## **PCL-R factor models**

### **Two-Factor Model (Hare, 1991)**

- 1. Aggressive narcissism**
- 2. Socially deviant lifestyle**

### **Three-Factor Model (Cooke & Michie, 2001)**

- 1. Arrogant and deceitful interpersonal style**
- 2. Deficient affective experience**
- 3. Impulsive and irresponsible behavior style**



## **PCL-R factor models**

### **Four-Factor Model (Hare, 2003)**

- 1. Interpersonal**
- 2. Affective**
- 3. Lifestyle**
- 4. Antisocial**



## Factor structure of the PCL-R

- **Do PCL-R scores based on file-only data result in valid scores which can be used for research purposes in a Dutch sample of forensic inpatients?**
- **Does at least one of the known factor models has a good fit in a Dutch sample of forensic inpatients?**



## Goodness of fit indexes for two-, three-, and four-factor model of PCL-R

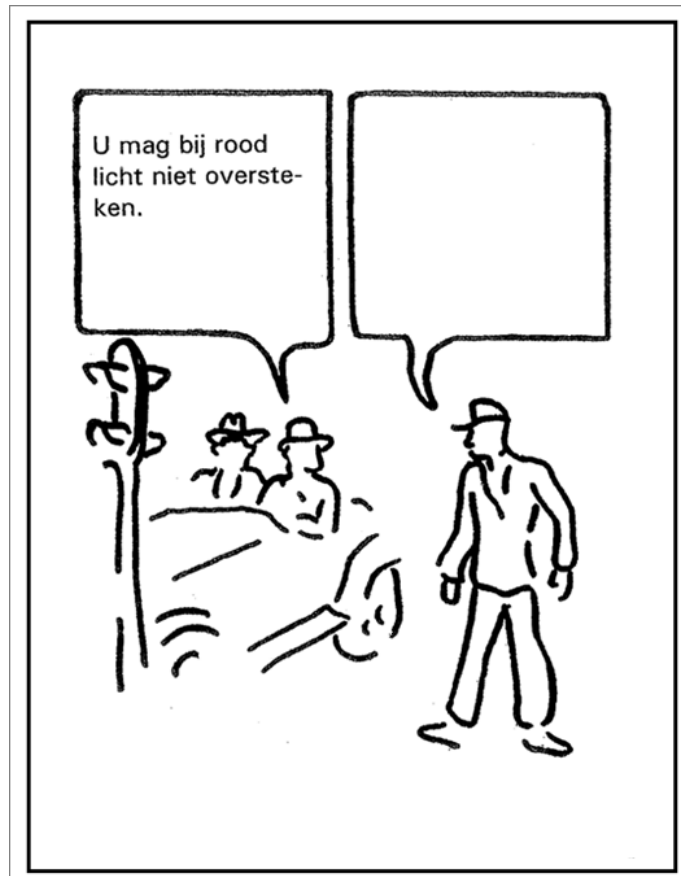
Factor model	Group	N	GFI	CFI	RMSEA	Chi2/df
Two	Total	343	.85	.74	.10	4.2
	Psychot. D.	118	.80	.73	.10	2.2*
	Pers. D.	225	.86	.76	.09	2.7*
Three	Total	343	.92*	.87	.08*	3.3
	Psychot. D.	118	.89	.89	.08*	1.7**
	Pers. D.	225	.91*	.86	.08*	2.3*
Four	Total	343	.88	.81	.08*	3.4
	Psychot. D.	118	.84	.82	.08*	1.8**
	Pers. D.	225	.87	.80	.08*	2.4*

## Conclusions

- **PCL-R scores based on file-only data result in valid scores for research purposes.**
- **Factors of three-factor structure can be used for dividing subgroups of patients.**
- **Subgroups can be used for the evaluation of a program for aggressive inpatients.**
- **Subgroups are related to different types of aggression (reactive vs. instrumental).**



## Adapted Version of Rosenzweig Picture-Frustration Study (PFS-AV): Hostility





## Adapted Version of the Picture-Frustration Study (PFS-AV)

### Psychometric properties ( $N = 231$ ):

- 12 pictures
- Factor structure: one factor
- Cronbach's  $\alpha$ : .76
- Inter-rater reliability: .77\*\*
- Test-retest reliability: .66\*\*

\*\*  $p < .01$



## Correlations between PFS-AV and other measures (N = 285)

Measure	Scale	PFS-AV
PCL-R	Psychopathy	.13
NEO-FFI	Extraversion	.20*
	Agreeableness	-.29**
	Conscientiousness	-.39**
STAS	Trait anger	.36**
AQ	Aggression	.39**
NAS	Anger	.41**
IIS	Social anxiety	.11
	Social skills	-.11

\* $p < .05$ ; \*\* $p < .01$

## Observation Scale for Aggressive Behavior (OSAB): Behavior on the ward

<i>Subscales</i>	<i>Items</i>	<i><math>\alpha</math></i>	<i>Inter</i>	<i>Retest</i>
<b>Irritation/Anger</b>	<b>5</b>	<b>.82</b>	<b>.79**</b>	<b>.59**</b>
<b>Anxiety/Gloominess</b>	<b>4</b>	<b>.79</b>	<b>.53**</b>	<b>.57**</b>
<b>Aggressive behav.</b>	<b>10</b>	<b>.79</b>	<b>.81**</b>	<b>.57**</b>
<b>Prosocial behavior</b>	<b>12</b>	<b>.93</b>	<b>.71**</b>	<b>.79**</b>
<b>Antecedents</b>	<b>6</b>	<b>.70</b>	<b>.49**</b>	<b>.58**</b>
<b>Sanctions</b>	<b>3</b>	<b>.63</b>	<b>.70**</b>	<b>.48**</b>

**\*\*  $p < .01$**

## OSAB: Correlations between subscales ( $N = 90$ )

<i>Subscale</i>	<i>Irrit.</i>	<i>Anx.</i>	<i>Aggr.</i>	<i>Ant.</i>	<i>Sanc.</i>
<b>Anx.</b>	<b>.59**</b>				
<b>Aggr.</b>	<b>.70**</b>	<b>.51**</b>			
<b>Ant.</b>	<b>.67**</b>	<b>.56**</b>	<b>.72**</b>		
<b>Sanc.</b>	<b>.68**</b>	<b>.49**</b>	<b>.69**</b>	<b>.62**</b>	
<b>Prosoc.</b>	<b>-.10</b>	<b>.08</b>	<b>-.06</b>	<b>-.09</b>	<b>-.04</b>

**\*\*  $p < .01$**



## OSAB: Correlations with PCL-R

<i>PCL-R</i>	<i>Aggressive behavior</i>	<i>Social behavior</i>
Total	.25**	.12
Factor 1	.17*	.11
Factor 2	.18*	.15

\* $p < .05$ , \*\* $p < .01$



## OSAB: Correlations with NEO-FFI and STAS

		<i>Aggressive behavior</i>	<i>Social behavior</i>
<b>NEO-FFI</b>	<b>Neuroticism</b>	<b>.14*</b>	<b>-.15</b>
	<b>Extraversion</b>	<b>-.01</b>	<b>.26**</b>
	<b>Openness</b>	<b>-.03</b>	<b>.29**</b>
	<b>Agreeableness</b>	<b>-.17</b>	<b>.12</b>
	<b>Conscientiousness</b>	<b>-.03</b>	<b>.18*</b>
<b>STAS</b>	<b>Trait anger</b>	<b>.27**</b>	<b>-.10</b>

\* $p < .05$ , \*\* $p < .01$

## OSAB: Correlations with AQ, NAS, and IIS

		<i>Agg. beh.</i>	<i>Soc. beh.</i>
AQ	Total	.20*	-.13
	Phys. aggr.	.14	.05
	Verb. aggr.	.22**	-.19*
	Anger	.26**	-.11
	Hostility	.08	-.23**
NAS	Anger	.18	-.19
IIS	Anxiety	-.05	-.12
	Skills	-.00	.22*

\* $p < .05$ , \*\* $p < .01$

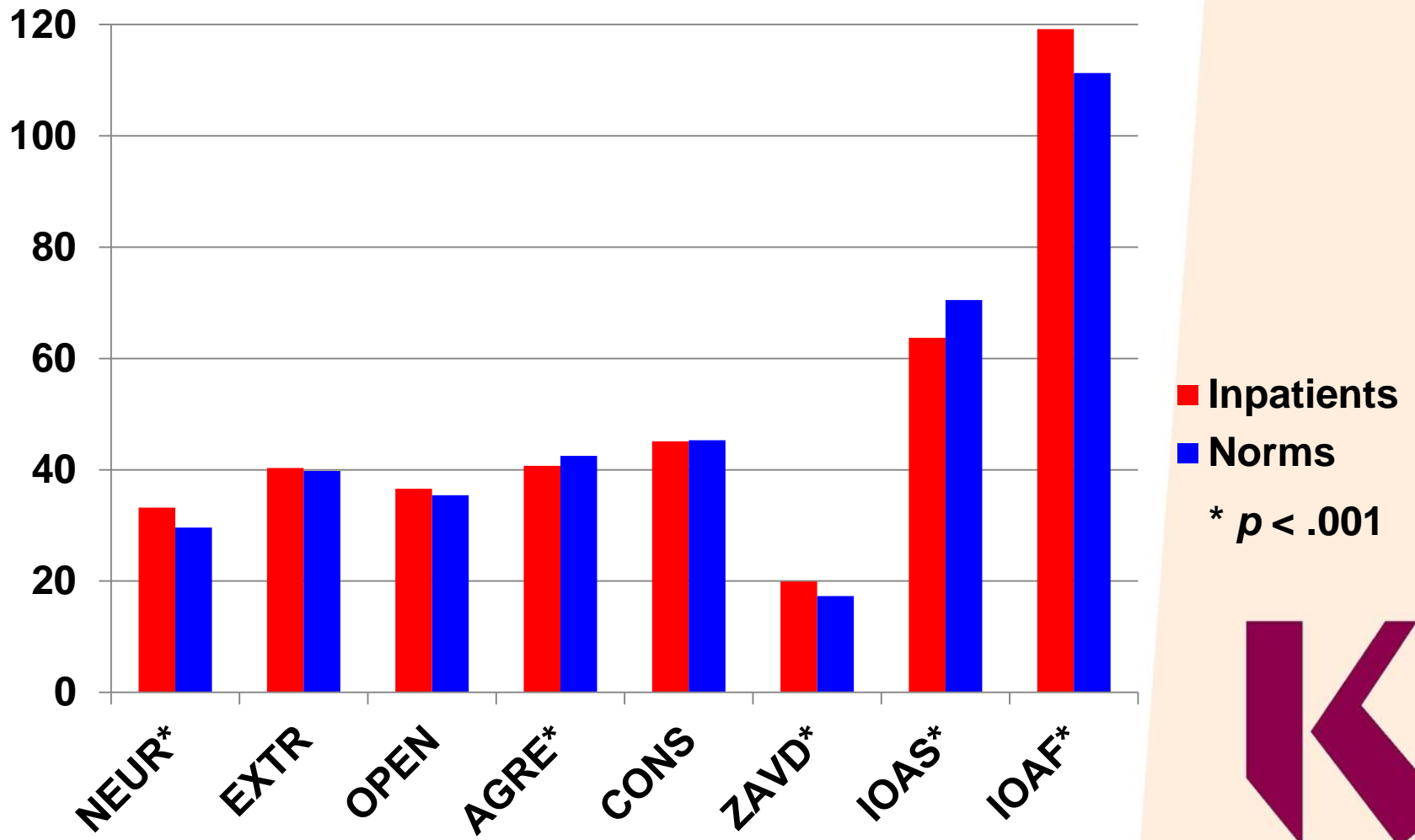


# Determinants of aggressive behavior

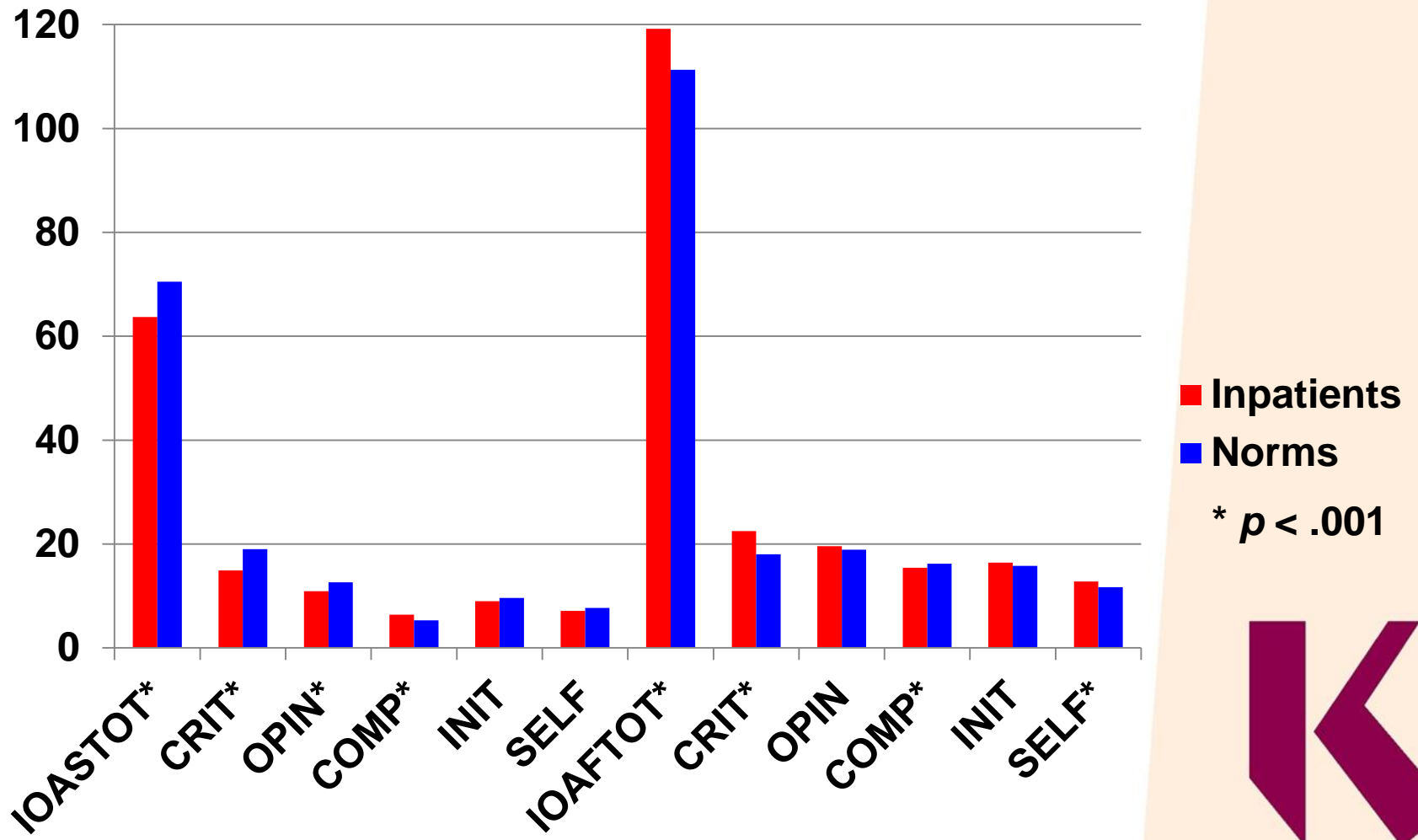




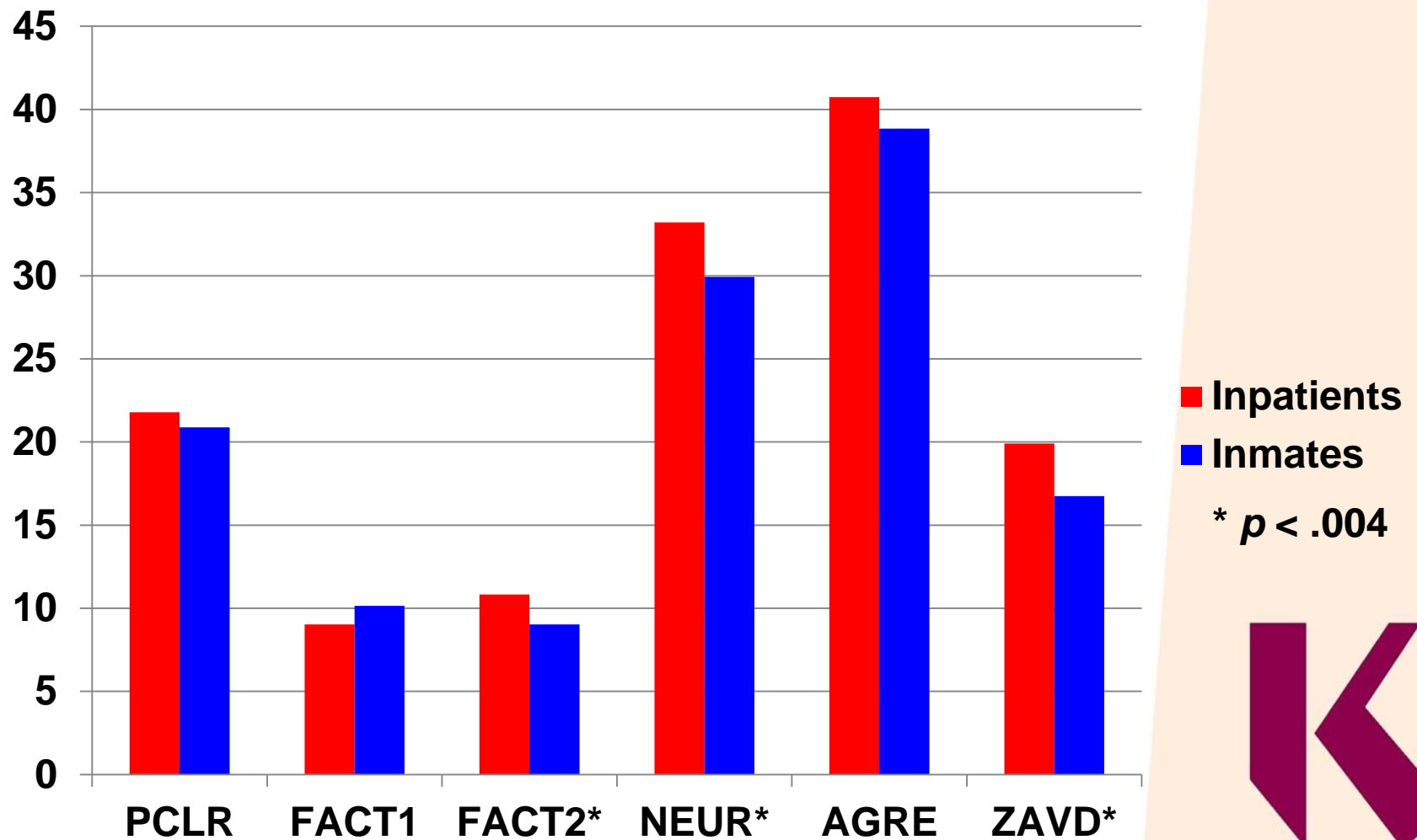
## Inpatients versus norms ( $N = 136$ )



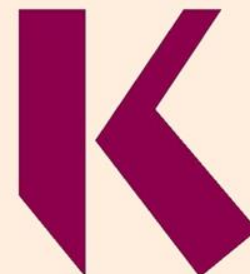
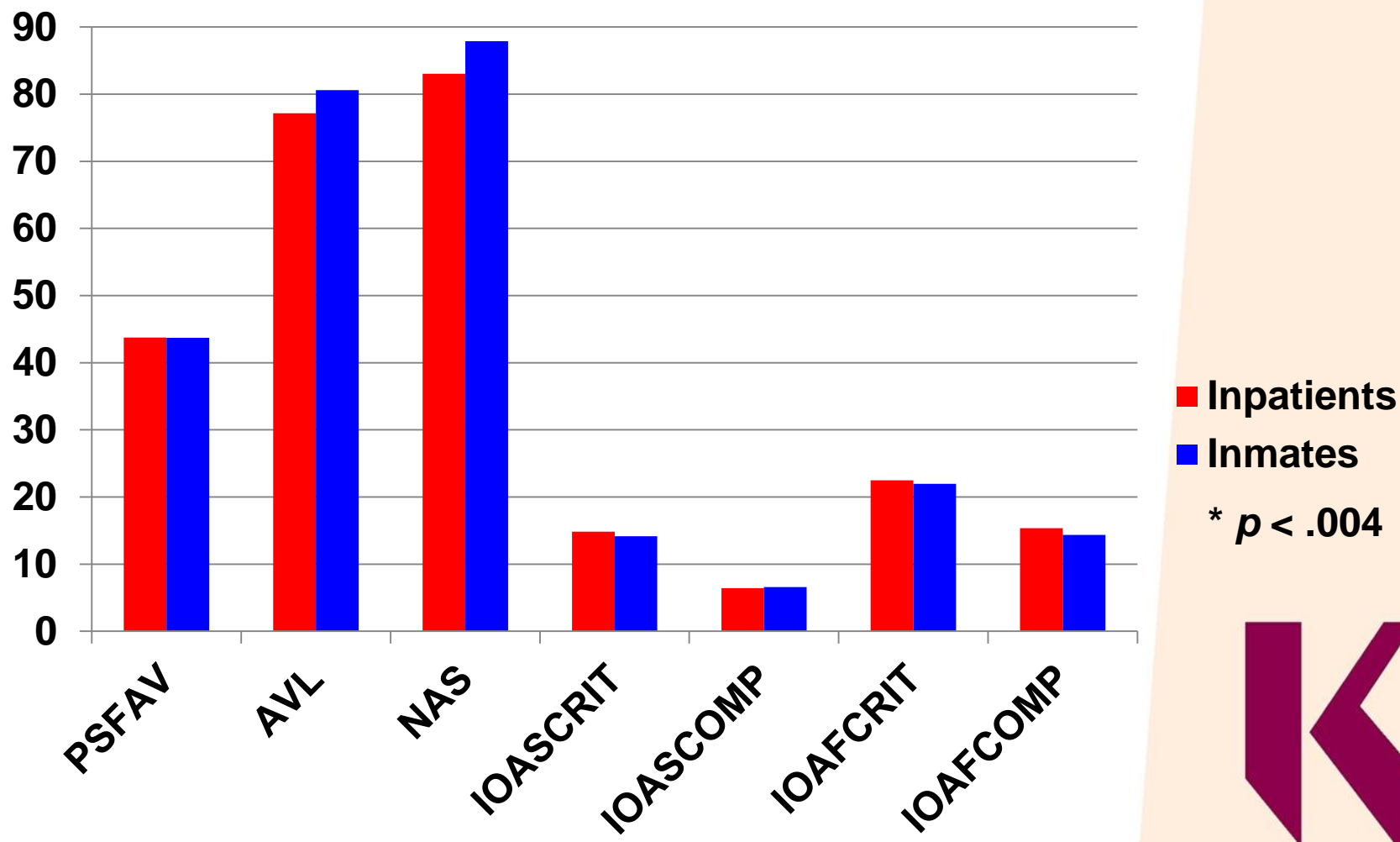
## Inpatients versus norms (N = 136)



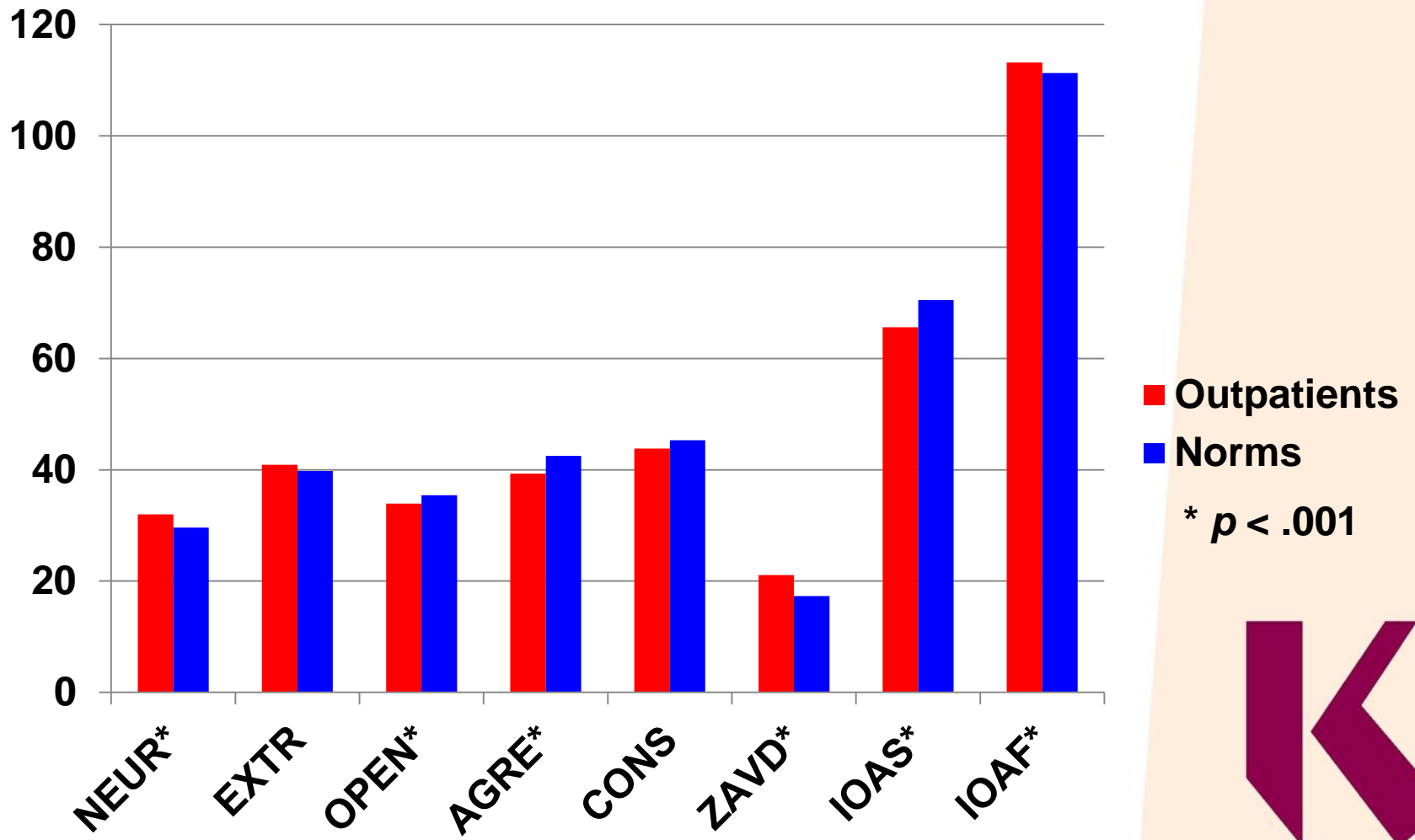
## Inpatients ( $N = 136$ ) versus detainees ( $N = 100$ )



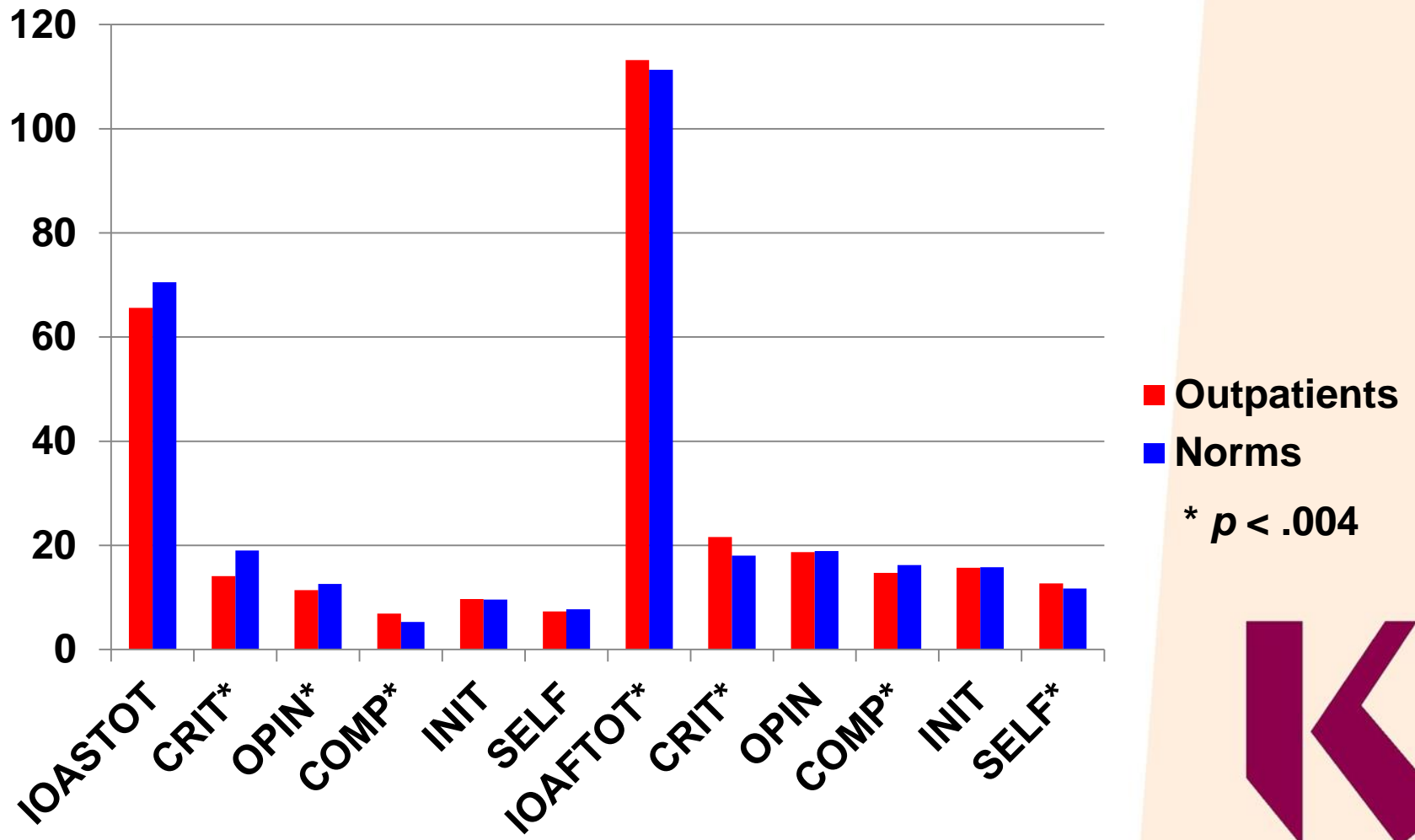
## Inpatients ( $N = 136$ ) versus detainees ( $N = 100$ )



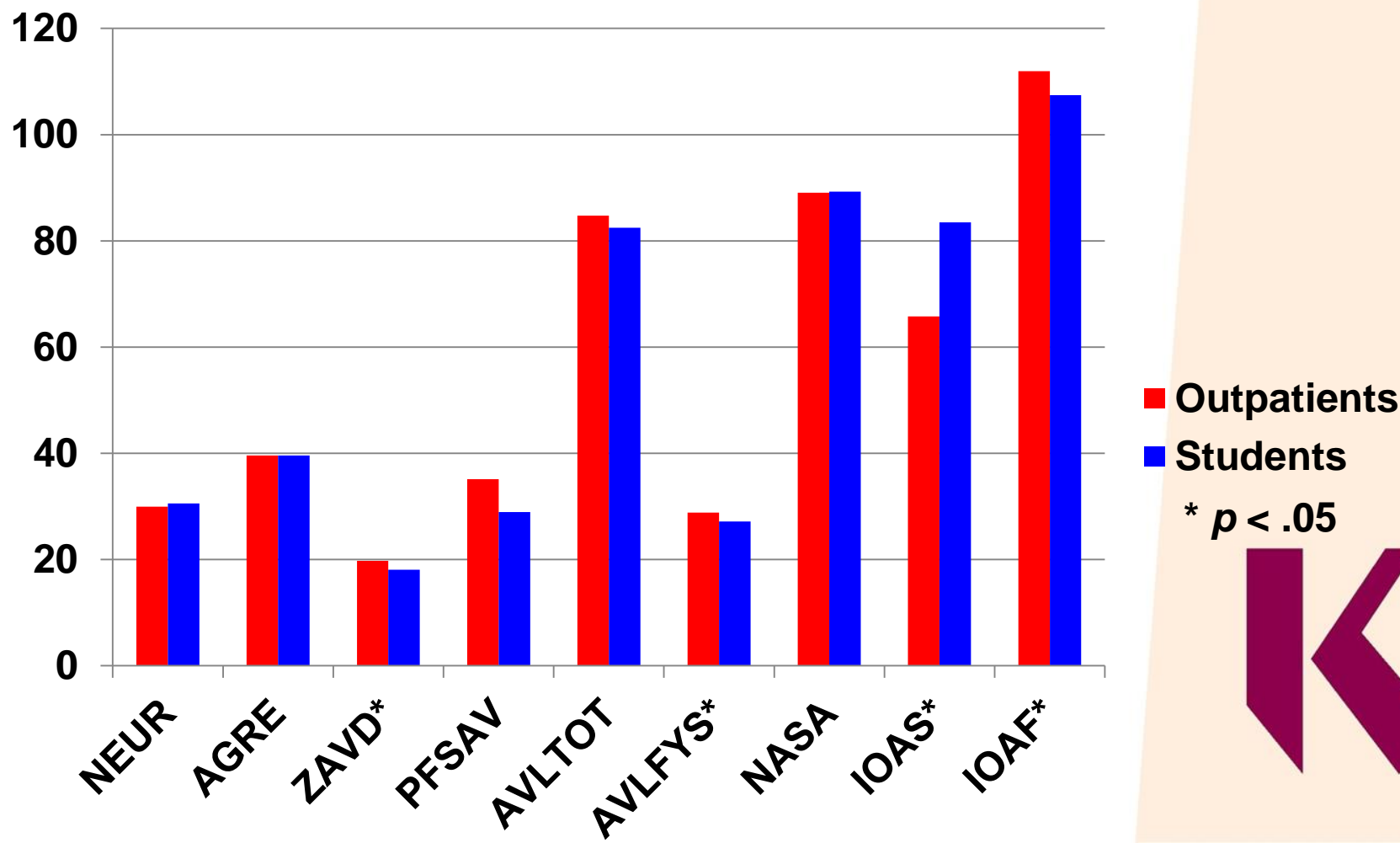
## Outpatients versus norms (N = 200)



## Outpatients versus norms (N = 200)



## Adolescent outpatients ( $N = 123$ ) versus students ( $N = 160$ )



# Development of program (short version)





# Aggression Control Therapy - Short Version

## Framework

- **Anger management (session 1-5)**
- **Social skills (session 6-10)**
- **Moral reasoning (session 11-15)**
- **Self-regulation skills (session 6-15)**
- **Follow-up, evaluation, and report**



## Anger management

- **Observing behavior of others**
- **Interpreting behavior of others**
- **Lowering heightened arousal**
- **Differentiating between emotions**
- **Realizing short-term and long-term consequences of behavior**



## Social skills

- **Choosing by patients of five skills from twelve**
- **Making an inventory of relevant problem situations for patients**
- **Modeling of skill by therapist**
- **Training of problem situations by patients**
- **Anticipating on future problem situations**
- **Follow-up, evaluation, and report**



## Moral reasoning

- **Practicing of virtual situations with a moral dilemma**
- **Practicing of a moral dilemma by means of role-playing**



## Self-regulation skills

- **Making programs for learning new behavior**
- **Lowering high aspiration level**
- **Reinforcing oneself for making progress in learning new behavior**
- **Completing program in five to ten sessions**



# Program implementation



## Facilities

- Treatment scenario for therapists
- Homework portfolio for patients

## Transference of knowledge and experience

- Training a group as co-therapist
- Supervision and/or training
- Workshops and/or lectures
- Publications: Articles, measurement instruments, and manuals



# Evaluation of program (short version)





## Multi-centered evaluation

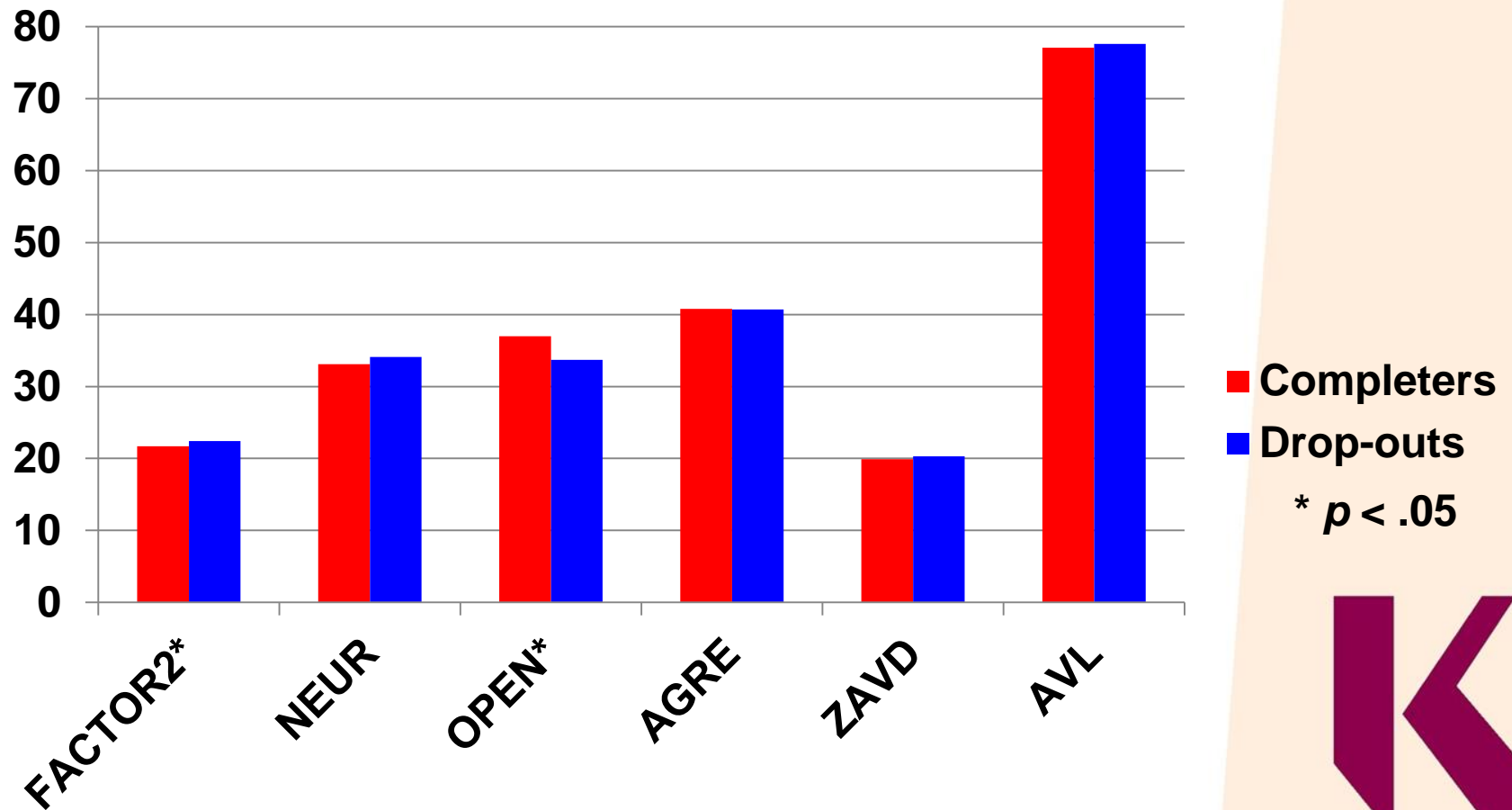
- **Six forensic psychiatric hospitals**
- **Two forensic psychiatric outpatient departments**
- **Pre, post, and follow-up measurements**

## “Effect” study

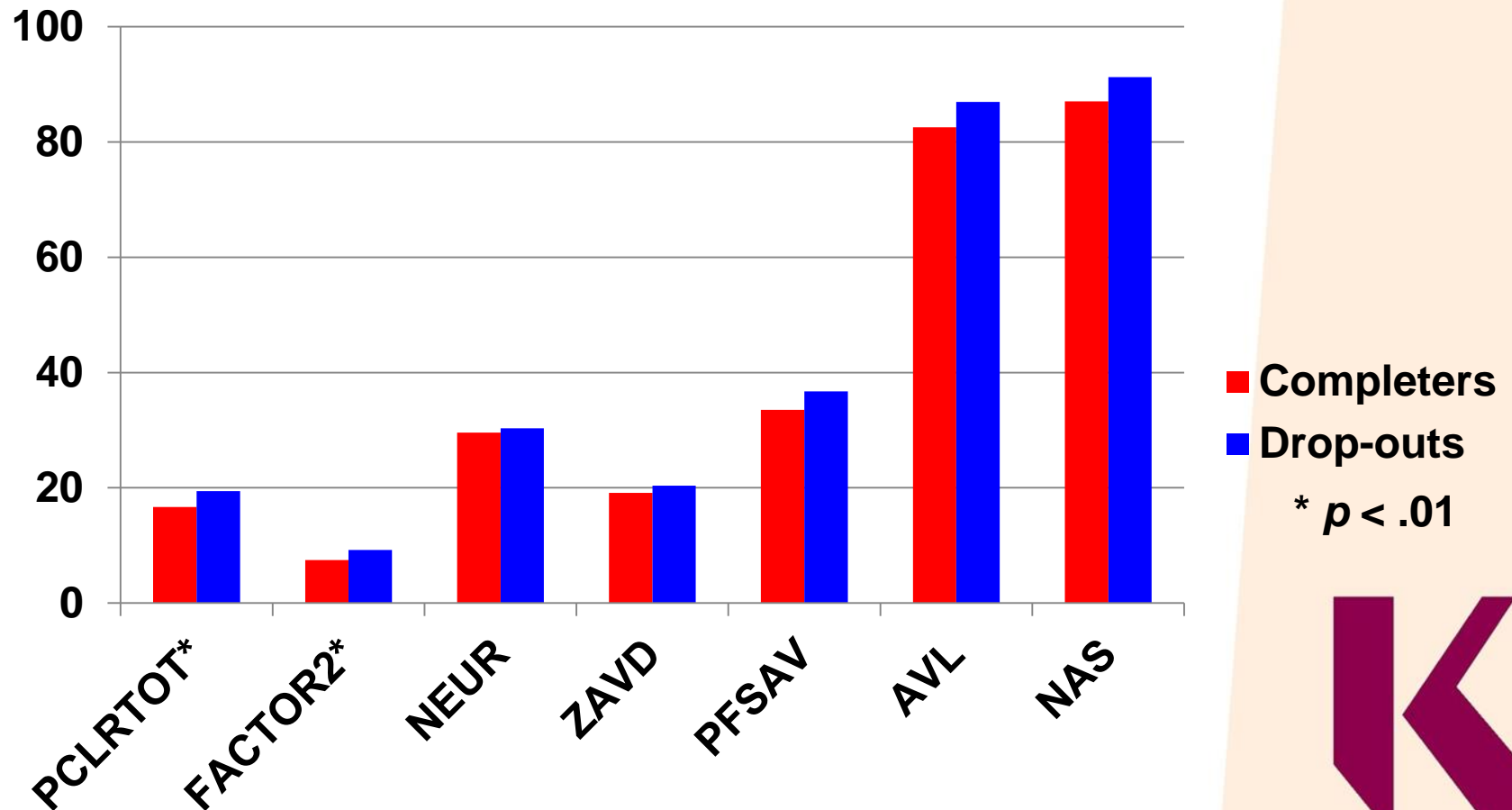
- **Inpatients: control condition is ‘care as usual’**
- **Outpatients: control condition is waiting list period**



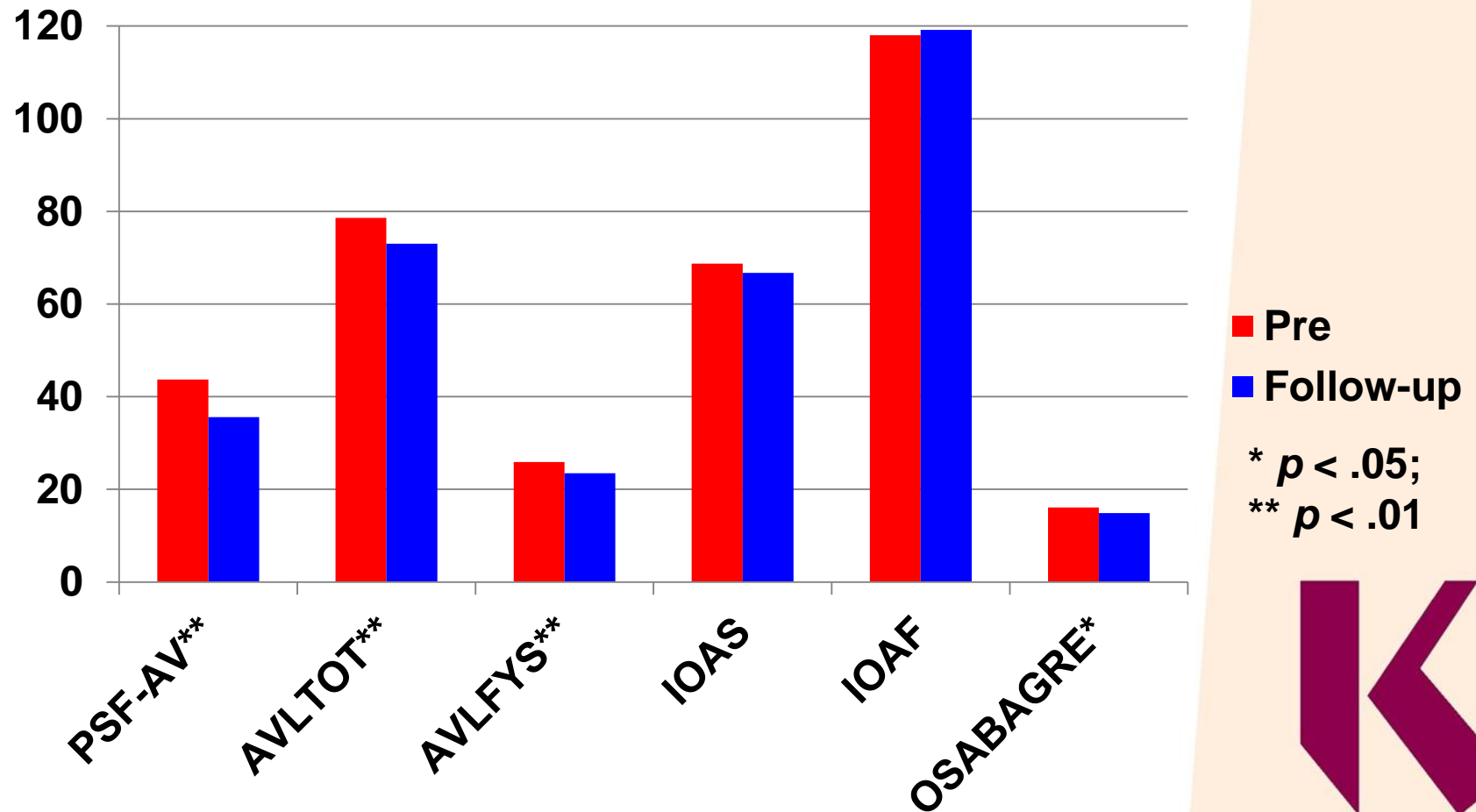
## Inpatients: Completers (N = 118) vs. drop-outs (N = 18)



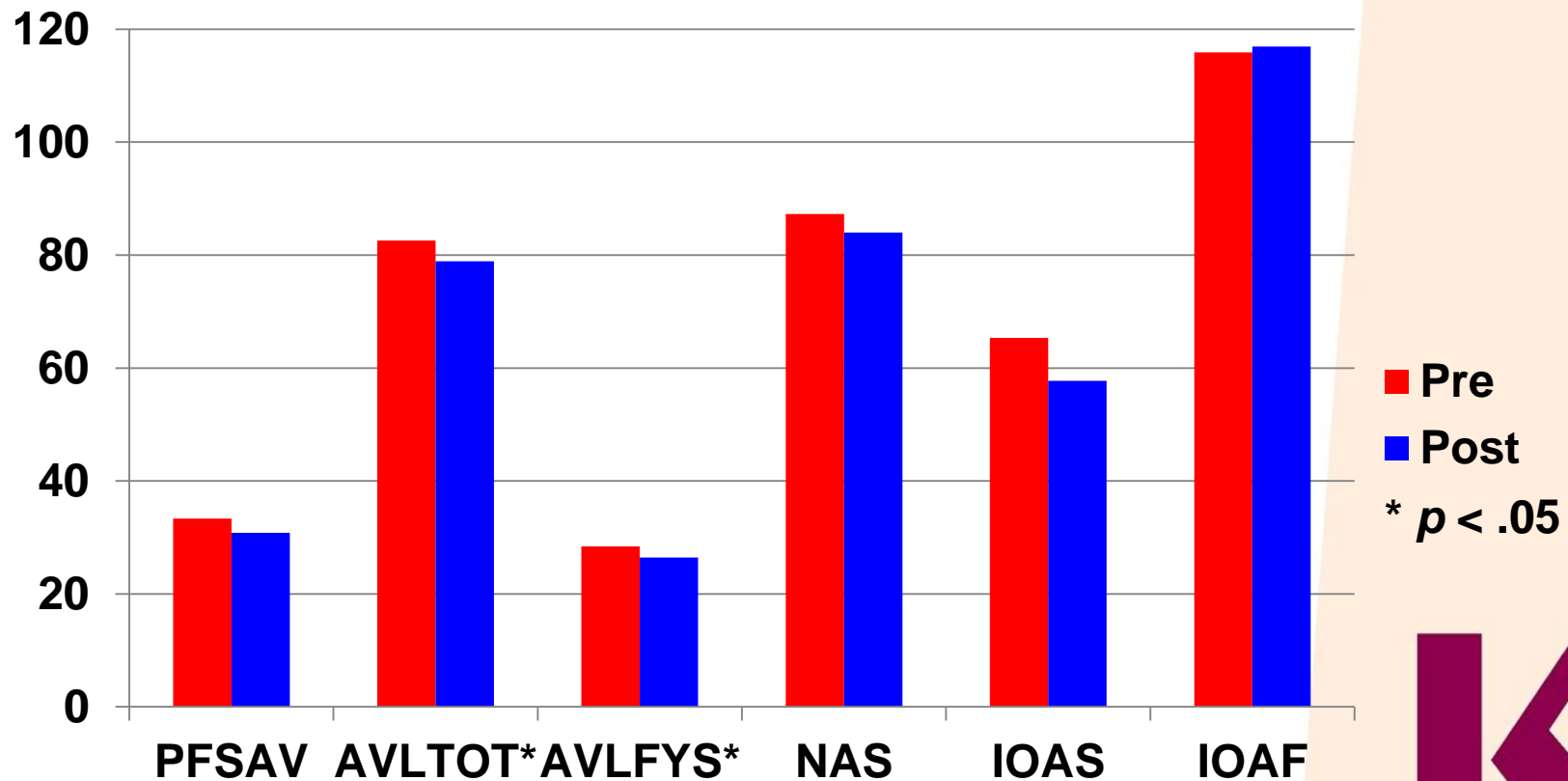
## Adolescent outpatients: Completers ( $N = 62$ ) vs. drop-outs ( $N = 61$ )



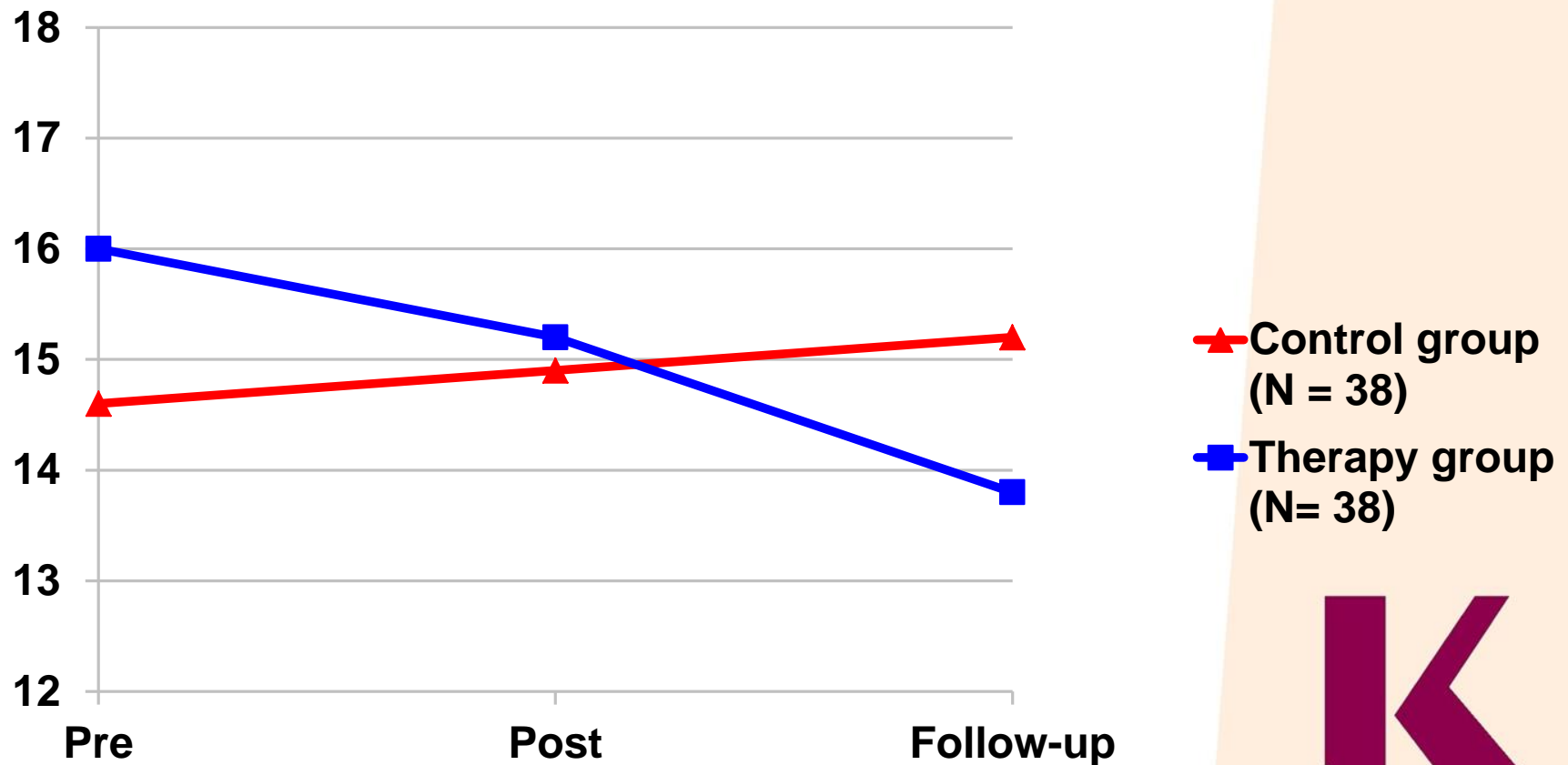
## Inpatients: Pre vs. follow-up (N = 92)



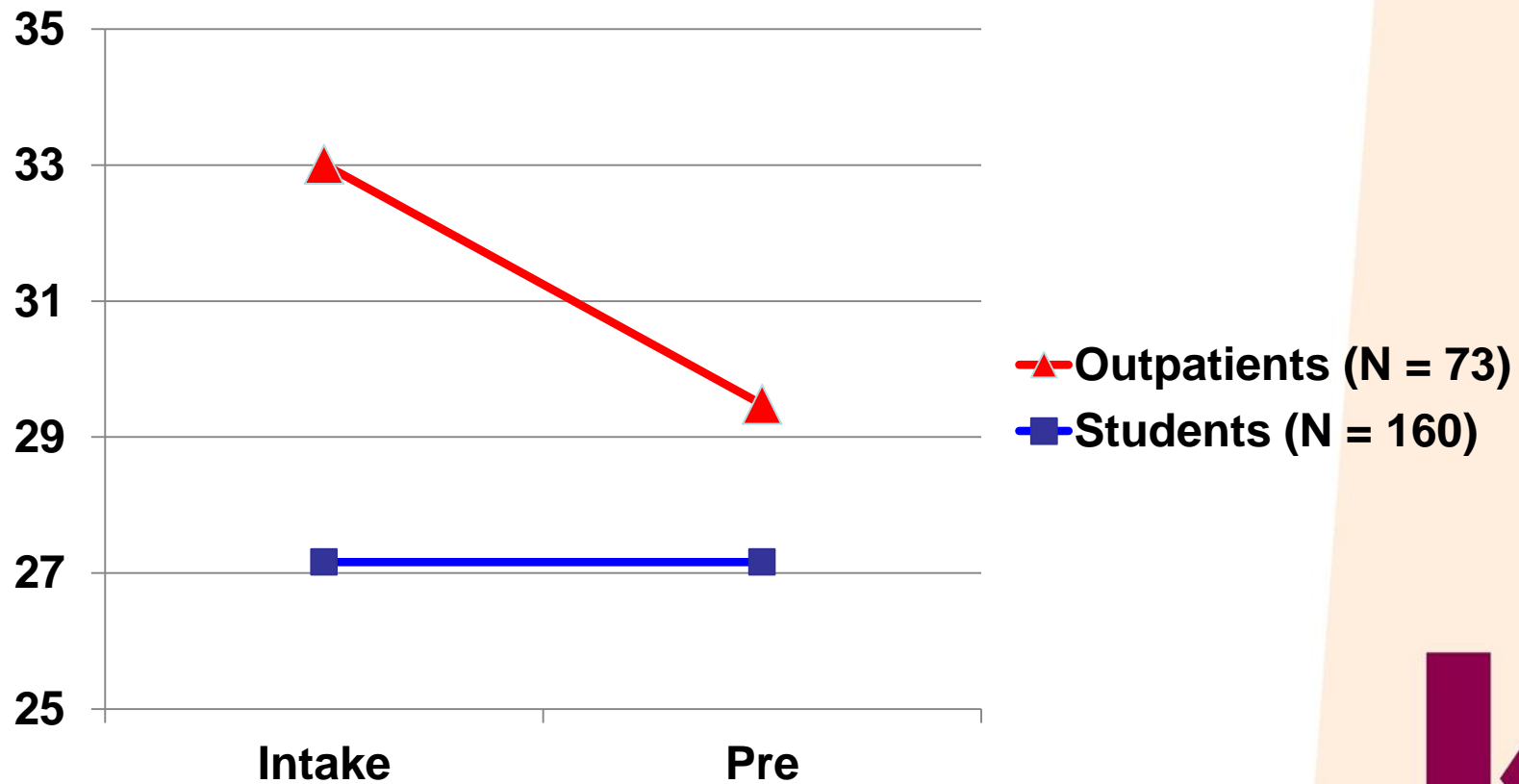
## Adolescent outpatients: Pre vs. post (N = 62)



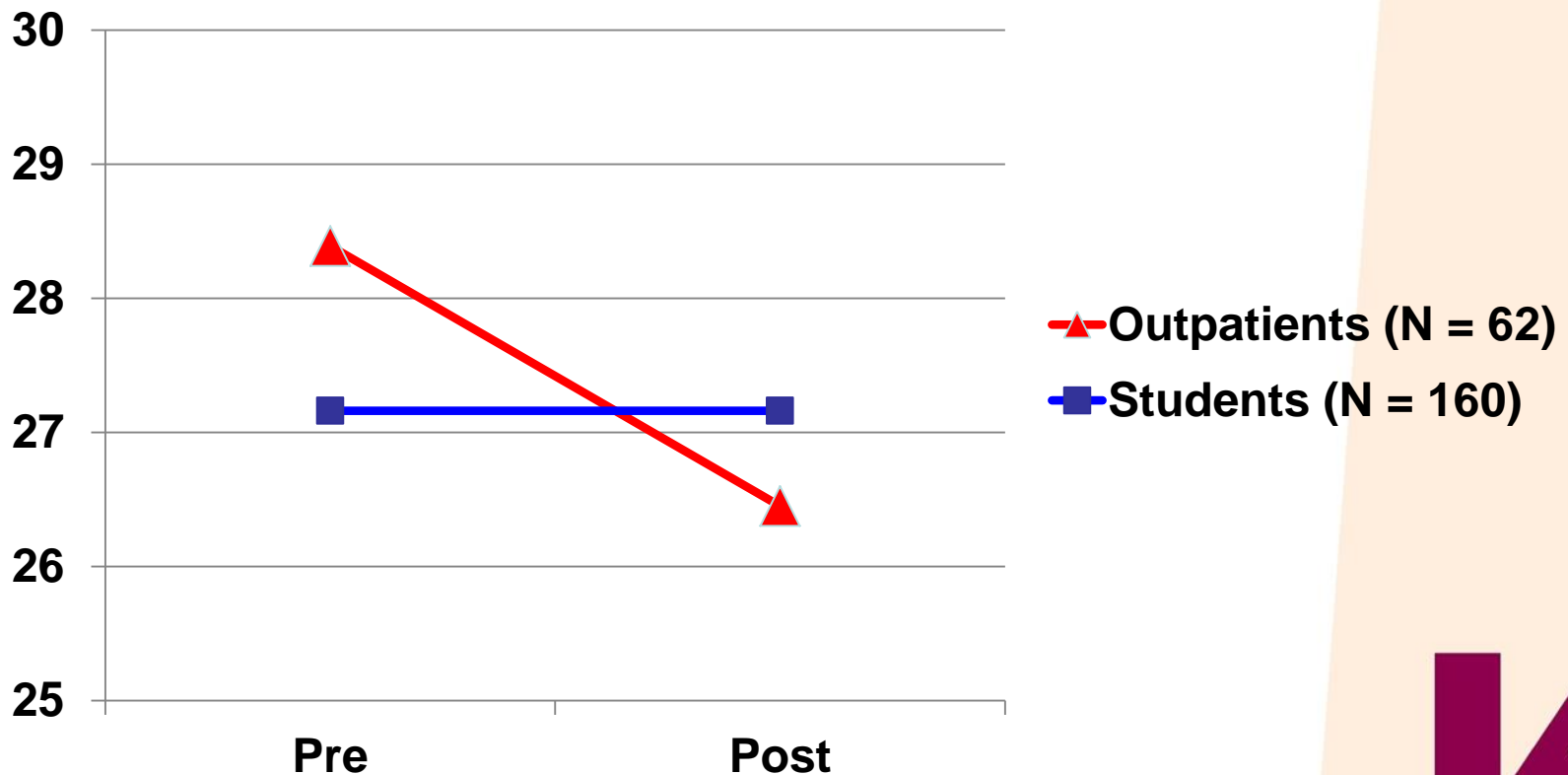
## Inpatients, measured with OSAB subscale Aggressive behavior



## Adolescent outpatients during waiting list period (AQ, Physical aggression)



## Adolescent outpatients during treatment, measured with the (AQ, Physical aggression)





# Extension of the program (long version)



## Individual differences and consequences for treatment

Subgroups, based on factors of PCL-R

1. Rejected males ( $f1 < \text{med}$ ,  $f2 < \text{med}$ )
2. Popular males ( $f1 > \text{med}$ ,  $f2 < \text{med}$ )
3. Sociopaths ( $f1 < \text{med}$ ,  $f2 > \text{med}$ )
4. Psychopaths ( $f1 > \text{med}$ ,  $f2 > \text{med}$ )



## Distribution of subgroups over settings

<i><b>Subgroup</b></i>	<i><b>Setting</b></i>		<i><b>Total</b></i>
	<i><b>Inpatients</b></i>	<i><b>Outpatients</b></i>	
<b>1. Rej. males</b>	<b>35 (37.5)</b>	<b>55 (22.8)</b>	<b>80</b>
<b>2. Pop. males</b>	<b>12 (46.4)</b>	<b>45 (22.0)</b>	<b>57</b>
<b>3. Sociopaths</b>	<b>36 (32.4)</b>	<b>18 (24.4)</b>	<b>54</b>
<b>4. Psychopaths</b>	<b>50 (33.2)</b>	<b>58 (22.4)</b>	<b>108</b>
<b>Total</b>	<b>133 (35.5)</b>	<b>176 (22.6)</b>	<b>309</b>



## Subgroups compared with 'norms' and with each other

		<i>Norm</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Stat.</i>
PCL-R			12.5	19.7	20.2	26.5	
NEO	N	29.6	34.6**	30.2	33.3**	31.9**	1>2, 4
STAS	D	17.2	21.6**	18.9	21.4**	20.9**	
PFS			49.3	42.7	43.5	46.2	
AQ	T		84.0	84.3	86.1	83.9	
IIS	A	70.5	71.5**	62.1**	63.8*	62.6**	1>4
IIS	S	111.3	107.8*	117.9*	120.8**	117.8**	1<3, 4

\* $p < .05$ , \*\* $p < .01$



## Consequences for ACT

**Subpopulations 1 and 3:** ACT-Short version for patients with mainly reactive aggression

**Subpopulations 2 and 4:** ACT-Long version for patients with reactive and proactive aggression



## **New modules**

### **Prosocial thinking**

- **Changing antisocial cognitions in prosocial cognitions**

### **Character formation**

- **Differentiating between consequences of behavior in the short and long run**

### **Prosocial network**

- **Making new prosocial contacts and terminating antisocial contacts**

### **Attitude towards women**

- **Dealing with women in contacts with different levels of intimacy**

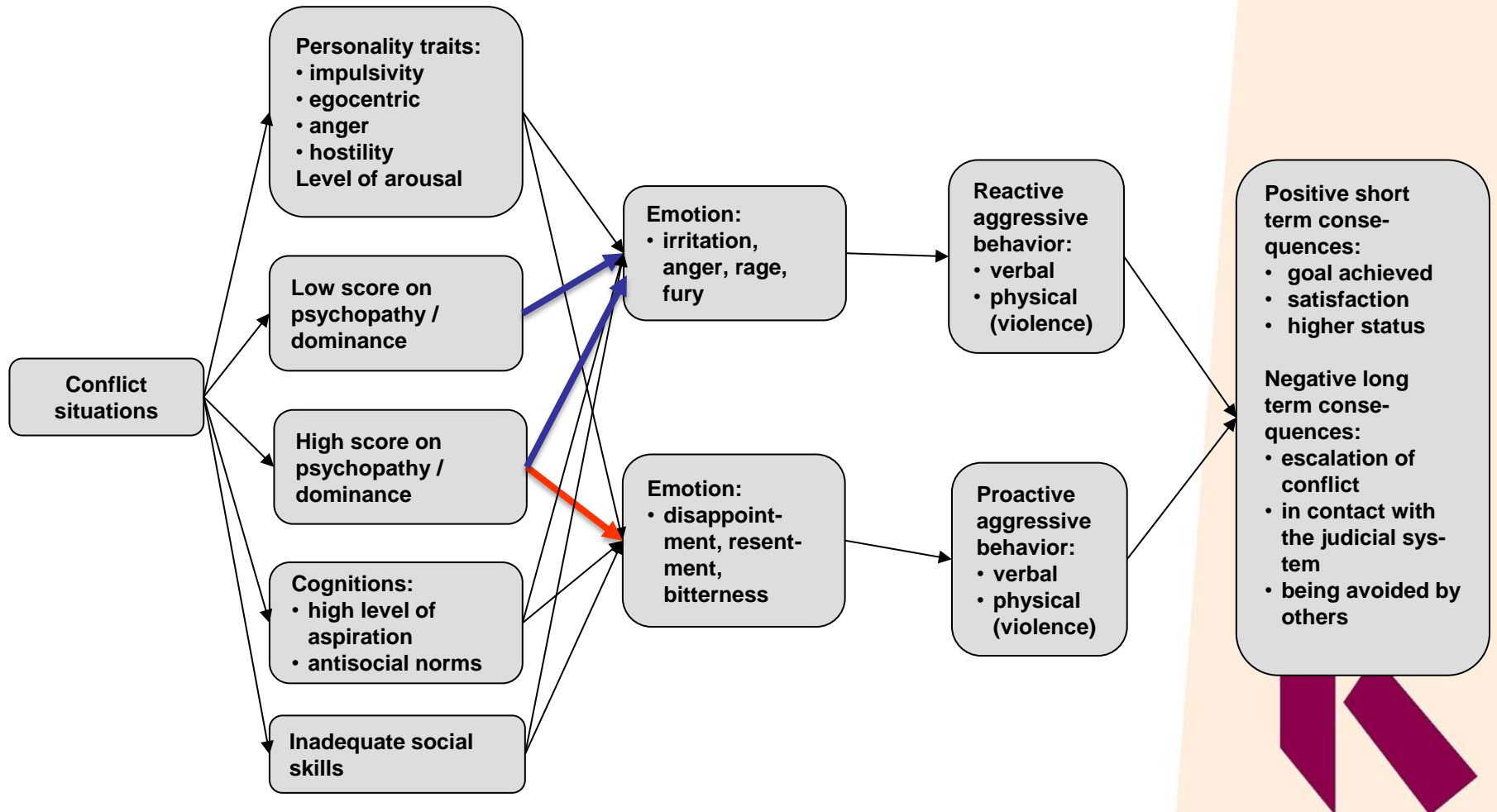


## **Aggression Control Therapy-Long version (38 sessions)**

- **Anger management**
- **Social skills**
- **Moral reasoning**
- **Prosocial thinking**
- **Character formation**
- **Prosocial network**
- **Attitudes towards women**
- **Evaluation**



# Model for aggressive behavior





## Extended aggression program

- **Aggression Control Therapy-Long version (38 sessions)**
- **Psychomotor therapy or sports (25 sessions)**



# New measurement instruments



## **New measurement instruments for program evaluation**

- **Kijvelanden Bodily Sensations List (KLS)**
- **Adapted Version of the Sociomoral Reflection Measure (SRM-AV)**
- **Attitudes towards Women Scale (HVL)**
- **Kijvelanden Aggression List (KAL)**



## **Kijvelanden Body Sensations List**

**Goal: Development of an instrument to measure  
bodily sensations**

**Procedure:**

- **Developing items**
- **Samples (inpatients, employees & soccer players)**
- **Psychometric properties**
- **Conclusions**



## Test-retest reliability

<i>Item</i>	<i>r</i>	<i>Item</i>	<i>r</i>	<i>Item</i>	<i>r</i>
1	.42	9	.22	17	.47
2	.49	10	.39	18	.28
3	.39	11	.48	19	.51
4	.58	12	.47	20	.45
5	.70	13	.34	21	.59
6	.19	14	.52	22	.61
7	.27	15	.45	23	.61
8	.53	16	.44	24	.59

## Kijvelanden Body Sensations List

- Removal of 7 items with test-retest  $r < .40$
- Removal of 4 items with item-total  $r < .10$

**Factor 1: Bodily sensations (items 11, 16, 20 & 22), e.g., “Certain bodily sensations make me notice that I am stressed”**

**Factor 2: Stressful situations (items 2, 5, 8, 15 & 21), e.g., “I blush when I get a compliment”**

**Factor 3: Coping behavior (items 1, 14, 17 & 23), e.g., “When I breath slowly I become less bodily aroused”**



## Kijvelanden Body Sensations List

<i><b>Subscales</b></i>	<i><b>Items</b></i>	<i><b><math>\alpha</math></b></i>	<i><b>Test-retest</b></i>
<b>1) Bodily sensations</b>	<b>4</b>	<b>.58</b>	<b>.53</b>
<b>2) Stressful situations</b>	<b>5</b>	<b>.63</b>	<b>.70</b>
<b>3) Coping behavior</b>	<b>4</b>	<b>.64</b>	<b>.66</b>



## Concurrent validity

Measure	Subscales	N	KLS			
			Total	Bodily awareness	Stressful situations	Coping behavior
SAQ	Somatic awareness	66	.38**	.24*	.29*	.23*
IIS	Anxiety	61	.20	-.11	.39**	.09
	Skills	61	.09	.07	-.08	.20
UCL	Active problem solving	66	.07	.03	-.14	.31**
	Palliative responses	66	.34**	.25*	.21*	.23*
	Avoidance	66	.29**	.02	.37**	.17
	Social support	66	.32**	.27*	-.04	.46**
	Depressive reaction	66	.28*	.13	.22*	.21*
	Expression of emotion	66	.01	.07	-.02	-.03
	Comforting cognitions	66	.25*	.14	-.04	.46**

\*  $p < .05$ , \*\*  $p < .01$



## **Adapted Version of the Sociomoral Reflection Measure (SRM-AV): Moral awareness**

**20 statements, scoring on seven points scale: four phases and three transitional phases (Gibbs et al., 1992)**

**Example of statement:**

**Suppose: Two lesbian women kiss each other in public. How important is it that lesbian women are not discriminated? .....**

**.....**



## Adapted Version of the Sociomoral Reflection Measure (SRM-AV)

Five factors:

1. Being respectful
2. Addressing the misbehavior of others
3. Helping disabled persons
4. Expecting respect from others
5. Preventing life danger of others

Cronbach's  $\alpha$ : .90

Interrater reliability: .78\*

Test-retest reliability: .57\*

\*  $p < .01$



## Correlations between SRM-AV and other measures

		Patients (N = 80)	Supporters (N = 40)
PCL-R	Psychopathy	-.07	---
NEO-FFI	Extraversion	.16	.34*
	Agreeableness	.31**	.32*
	Conscientiousness	.14	.48**
PFS-AV	Hostility	-.08	-.38*
AQ	Aggression	-.04	-.18
IIS	Social anxiety	.10	---
	Social skills	-.14	---

\* $p < .05$ , \*\* $p < .01$

## Attitudes towards Women Scale (HVL)

- **Items derived from HMI, AWS and clinical practice: Example: “Dirty jokes are reserved for men.”**
- **First, respondents react on a statement by means of a five point scale, running from “totally disagree” to “totally agree.” Then, they have to explain their reaction shortly.**
- **Written reactions are scores on a seven point scale for dominance, running from “not at all dominant” to “ extremely dominant.”**



## Inter-rater reliability

- **28-item version:  $\alpha = .76$ ,  $r = .89$  ( $p < .01$ ) for 34 patients.**
- **Removal of items with an inter-rater reliability  $< .65$  and of items with an item-total correlation  $< .30$ .**
- **Remains a 12-item version:  $\alpha = .97$  and  $r = .94$  ( $p < .01$ ).**
- **Score on 12-item version correlates significantly negative with agreeableness and significantly positive with trait anger, hostility, and verbal aggression.**



## Factor structure

**Three factors for 80 patients:**

- 1. Privileges of men, e.g.: “Some women need a good scrub-up before they realize that the man is the boss.”**
- 2. Improper behavior of women, e.g.: “It is more humiliating for a woman to be drunk than for a man.”**
- 3. Duties of women, e.g.: “It is the duty of every woman to satisfy the sexual needs of her husband.”**



## Test-retest reliability

- $\alpha = .85$  for 80 patients and  $r = .85$  ( $p < .01$ ) for 52 patients.
- $\alpha = .69$  for 40 soccer players.
- No significant differences in HVL total scores between patients and soccer players, however significantly different scores on items 7, 8 en 12.



## Concurrent validity

		<i>Patients (N = 80)</i>	<i>Soccer (N = 40)</i>
<b>PCL-R</b>	<b>Psychopathy</b>	.03	---
	<b>Affective</b>	.16	---
<b>NEO-FFI</b>	<b>Neuroticism</b>	.02	.15
	<b>Agreeableness</b>	-.31**	-.37*
	<b>Conscientiousness</b>	-.26*	.12
<b>STAS</b>	<b>Trait anger</b>	.07	.29
<b>PFS-AV</b>	<b>Hostility</b>	.40**	-.12
<b>AQ</b>	<b>Verbal aggression</b>	.34**	.37*
	<b>Anger</b>	-.12*	.36
<b>NAS</b>	<b>Anger</b>	---	.36*
<b>SRM-AV</b>	<b>Moral awareness</b>	-.26	---

\*  $p < .05$ , \*\*  $p < .01$



# Evaluation of program (long version)



## First results with ACT-L (N = 30)

