Item Response Theory analyses of DSM-5 substance criteria: comparison of active substance users seeking treatment and those in harm reduction settings

M. Auriacombe, C. Kervran, F. Serre, C. Denis,
M. Jauffret-Roustide, L. Lalanne-Tongio, P. Roux , M. Fatseas

INTRODUCTION

To study the validity and utility of Substance Use Disorder (SUD) criteria of DSM-5, it is necessary to characterize psychometric properties of 11 criteria

- Item Response Theory (IRT) analysis provides important advantages in understanding item behavior
- Studied only among general and clinical population seeking abstinence or use reduction
- Few studies explored the psychometric properties including the new criteria of Craving in Harm Reduction settings

OBJECTIVE

To compare IRT of DSM-5 substance criteria between active substance users who were:

- Seeking support for safer use in harm reduction settings
- Seeking treatment in outpatient clinics

METHODS

Study design

- Two prospective cohort studies in 2 different types of center in Bordeaux, France:
    - COSINUS: Harm reduction settings
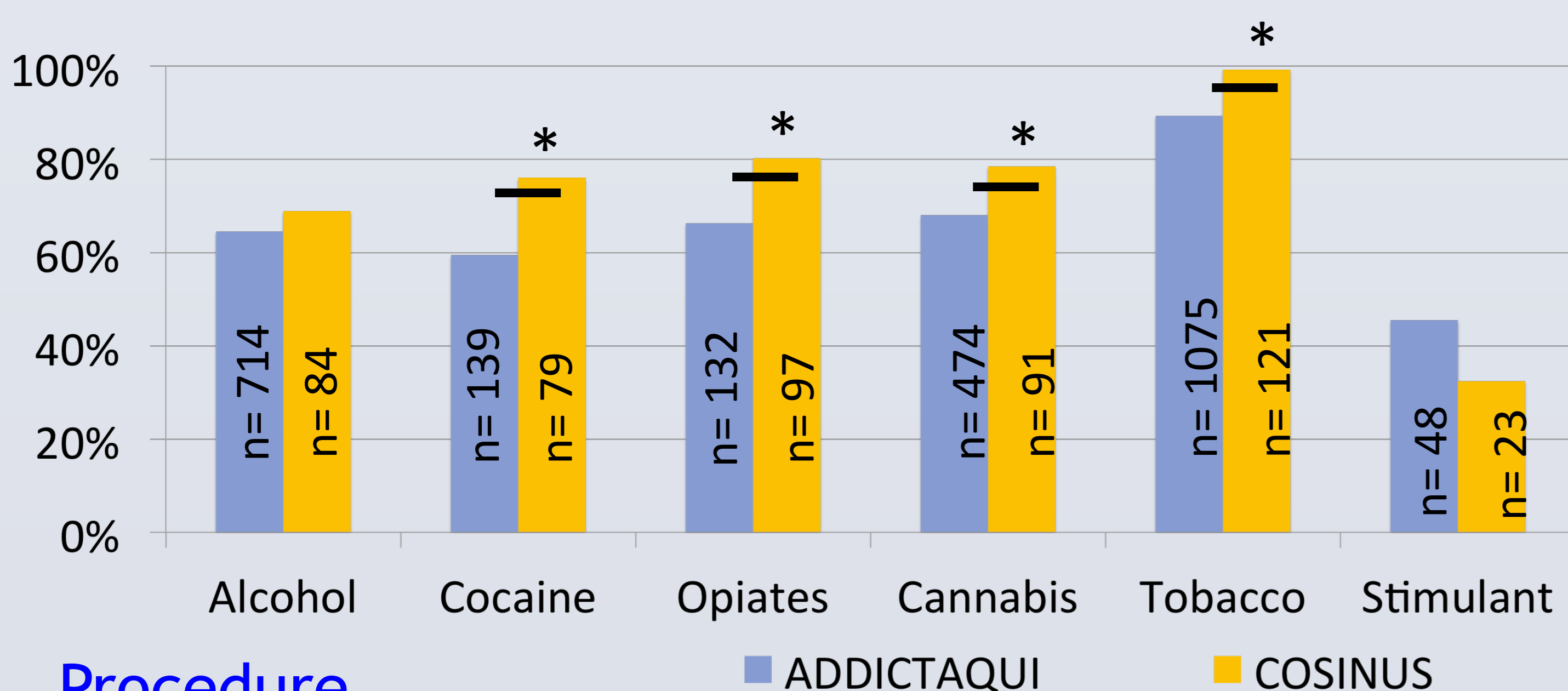   - ADDICATQUI :Outpatient addiction treatment programs

Participants

COSINUS : Regular users of illegal substances or misused medications, injected at least once over past 30 days
ADDICTAQUI : At least one Use Disorder and seeking treatment

Sample: individuals who reported current regular use (at least twice during the past 12 months)

	ADDICTAQUI (n=1250)		COSINUS (n=122)		p-value
Age (mean, SD)	38.6	11.5	34.3	7.9	<.0001*
Males (n, %)	835	68%	94	77%	.0373*

Prevalence of current regular users included by substance

Procedure

Data collected by face-to-face interviews by a trained interviewer

Measures

- Substance Use Disorder diagnoses: Mini International Neuropsychiatric interview
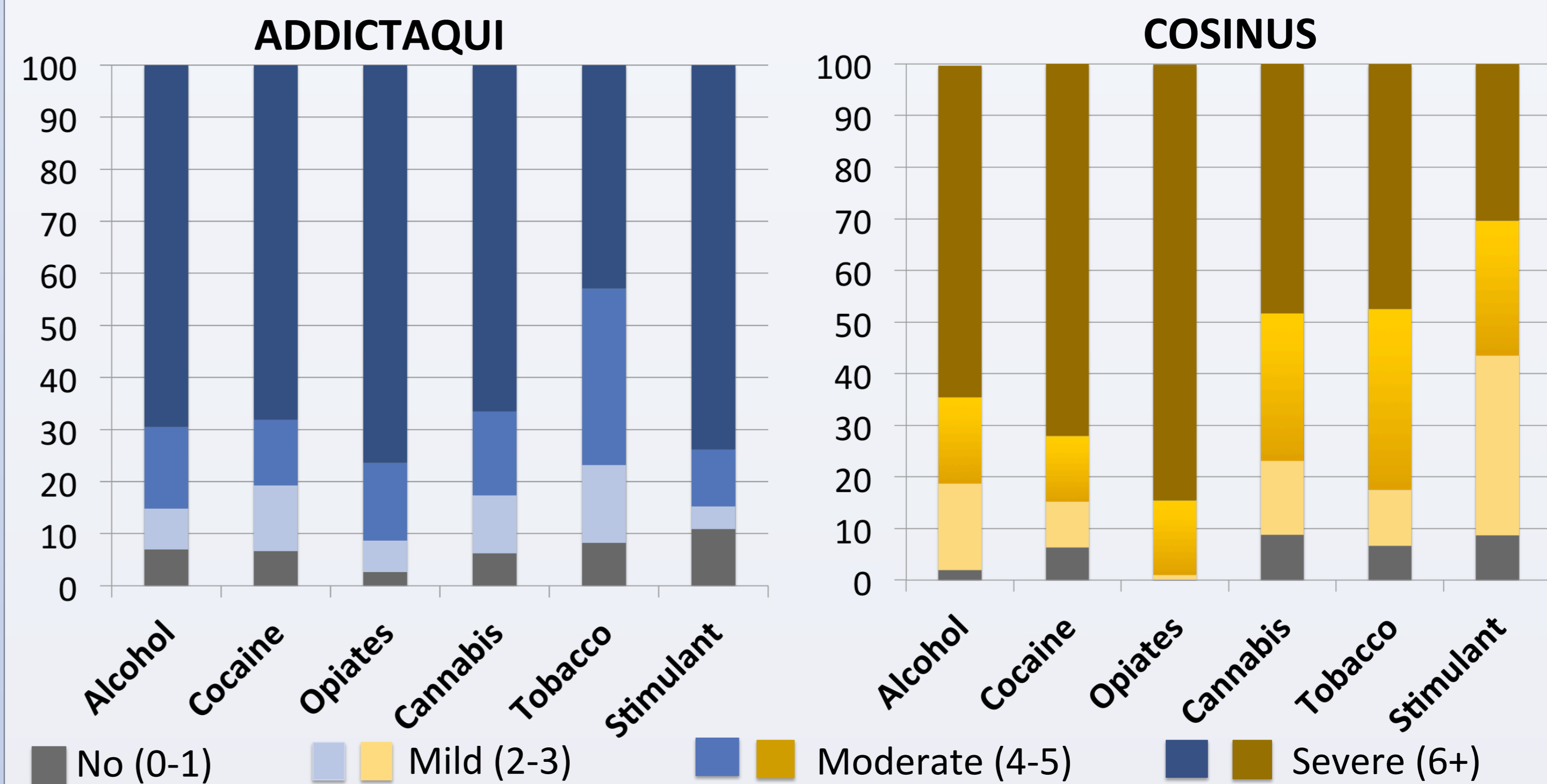- Use of substances : Addiction Severity Index

Statistical Analyses

2-parameter logistic IRT model was conducted and ranked criteria by their estimated severity. Similarity of criteria severity ranking between the two samples was quantified with Spearman correlations

RESULTS

DSM-5 Current Substances use Disorder

- Among current regular users: no differences in DSM-5 Substance use Disorder prevalence
- But there are differences in the distribution of the severity

Legend: ■ No (0-1) ■ Mild (2-3) ■ Moderate (4-5) ■ Severe (6+)

Dimensionality: Factor analyses of 11 criteria (DSM-5) showed criteria formed one factor

IRT analysis: Severity and discrimination rankings were not identical across samples

Severity ranking	Alcohol		Cocaine		Opiates		Cannabis		Tobacco		Stimulant	
Tolerance	5	3	5	1	1	4	3	4	6	8	2	3
Withdrawal	11	10	8	11	2	1	4	8	4	3	10	7
Large amount	1	2	1	4	6	5	6	5	1	1	1	2
Unsuccessful cut down	3	8	9	9	3	6	**5**	**11**	3	5	11	11
Time spent	10	6	4	5	7	9	10	6	7	4	3	5
Given up activities	8	11	10	7	8	10	9	9	8	11	9	9
Psy. or phys. problem	7	7	7	6	5	8	7	7	5	7	4	4
Failure fulfill roles	9	9	11	10	11	11	11	10	10	9	5	10
Hazardous Use	2	1	2	3	9	7	1	1	11	6	7	1
Social problem	6	5	6	8	**10**	**3**	8	3	9	10	8	8
Craving	4	4	3	2	4	2	2	2	2	2	6	6

Legend: 1 =less severe = more frequent → 11 =more severe = less frequent

Correlation between ADDICTAQUI and COSINUS

	Severity	
	Spearman ρ	**Prob>|ρ|**
Alcohol	0.7364	.0098*
Cocaine	0.7636	.0062*
Opiates	0.5727	.0655
Cannabis	0.5636	.0710
Tobacco	0.7364	.0098*
Stimulant	0.6545	.0289*

CONCLUSION

- **One-dimensional** structure of DSM-5 criteria
- Criteria have **similar patterns of severity** regardless of substance user's abstinence orientation

    → Except for **Opiates and Cannabis**: high difference in rank for social problem and Unsuccessful cut down criteria between COSINUS and ADDICTAQUI

- likely because high prevalence of precarious people with high social problem among Harm reduction users
- likely because less attempt to stop cannabis among Harm reduction users

Contacts :
charlotte.kervran@u-bordeaux.fr
marc.auriacombe@u-bordeaux.fr