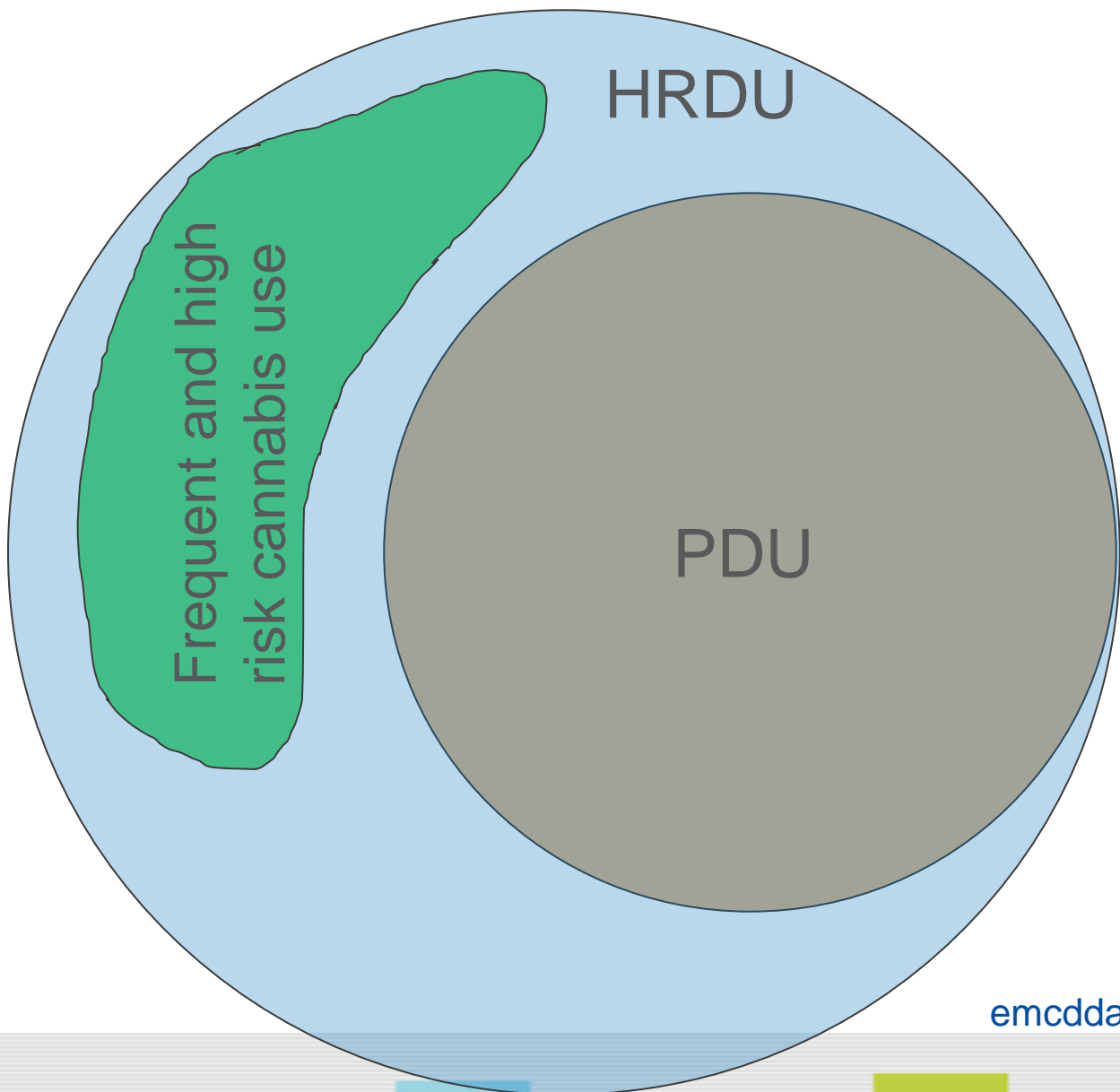# Monitoring frequent and high risk cannabis use

Danica Thanki and Eleni Kalamara

General Population Surveys annual expert meeting

Lisbon, 17 June 2014

2012 Problem drug use key epidemiological indicator revision: HIGH RISK DRUG USE

HRDU

Frequent and high risk cannabis use

PDU

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Monitoring of more intensive forms of cannabis use

Two complementary components:

Frequent cannabis use: defined by frequency of use
"Use of cannabis daily, or almost daily, in the preceding 12 months" → *20+ days/last 30 days*

EMQ

High risk cannabis use: defined by (a proxy of) cannabis use disorders
"Medical diagnosis according to current DSM or ICD criteria, e.g. cannabis harmful use or dependence or cannabis use disorder diagnosed in the past 12 months." → *CAST and its approximation of cannabis dependence*

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Prevalence of daily and almost daily cannabis use among young adults (15–34)

Percent | <0.50 | 0.51–1.0 | >1.0 | No data

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New guidelines

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HOW & WHY

Isn't frequency of use enough?

20+ days in the last 30 days – useful, harmonised measure, substantiated by research

Still a lot of variation within the group of daily or near daily users

Additional level of risk, need for treatment – initiative from countries to use short instruments

Large validation study using cannabis disorders as a gold standard

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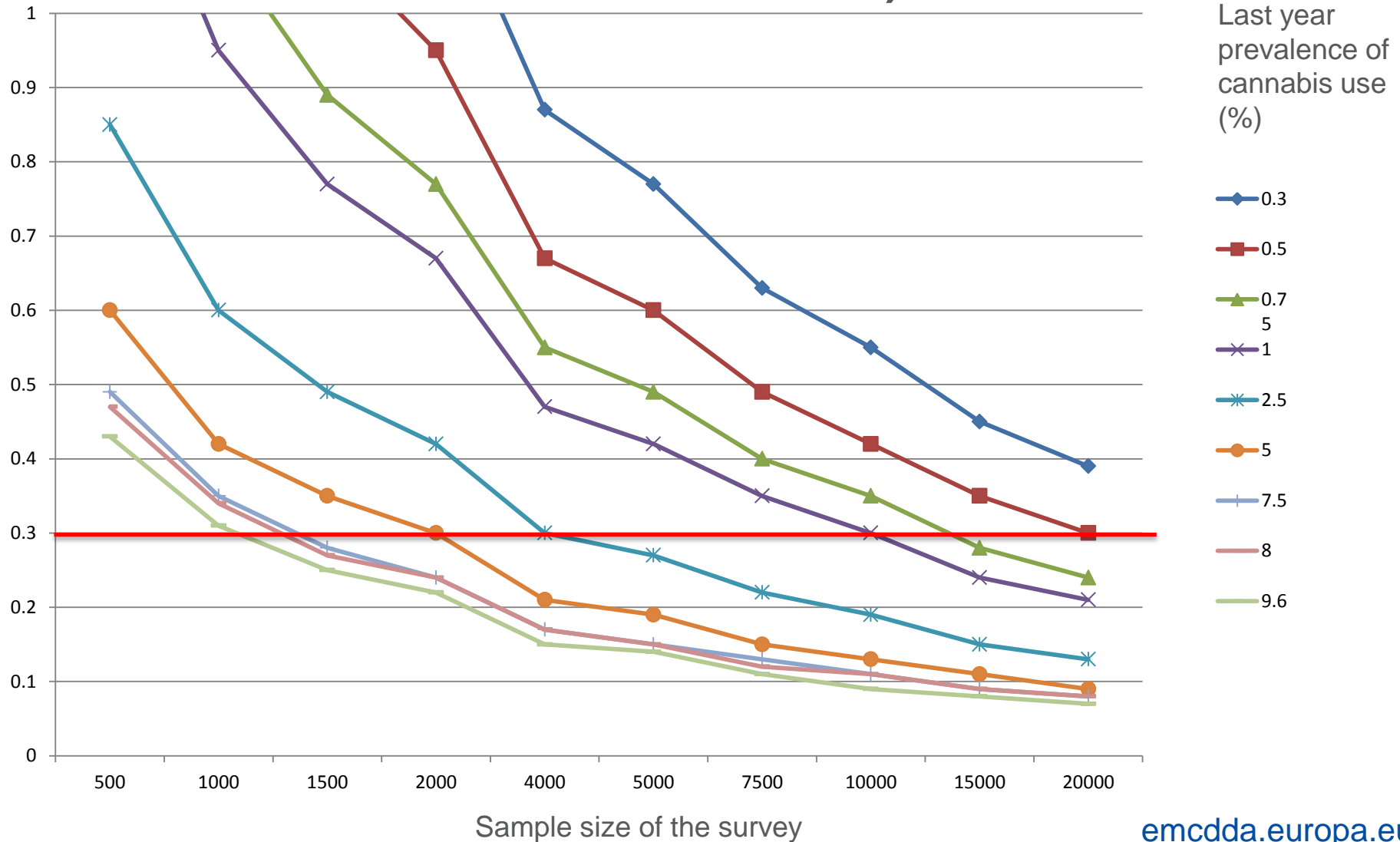
Why cannabis dependence?

Concept of dependence:

- Central in research
- Good to excellent reliability in studies
- Validity confirmed by multi-method comparisons, longitudinal studies, latent variable analysis and construct validation studies
- Cross-cultural and some cross-species validity of the syndrome

Cannabis dependence: correlation with cannabis use-related problems, mental health problems and use of other substances

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WHICH COUNTRIES?

Precision of cannabis dependence prevalence estimate: Standard error / mean < 0.3 (Online calculator) (US National Center for Health Statisics)

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WHICH SCALE?

CAST

- better psychometric properties
- better predictor of cannabis dependence (we will see later)

WHAT CUT-OFF POINT?

Cut-off points and scales in low-prevalence conditions

Screening instruments as a rule overestimate prevalence at optimal cut-off points (best trade-offs between sensitivity and specificity) in situation of low prevalence (many more false positives than false negatives or low PPP)

$\rightarrow$ Solution sought for this problem

Comparison of different estimates
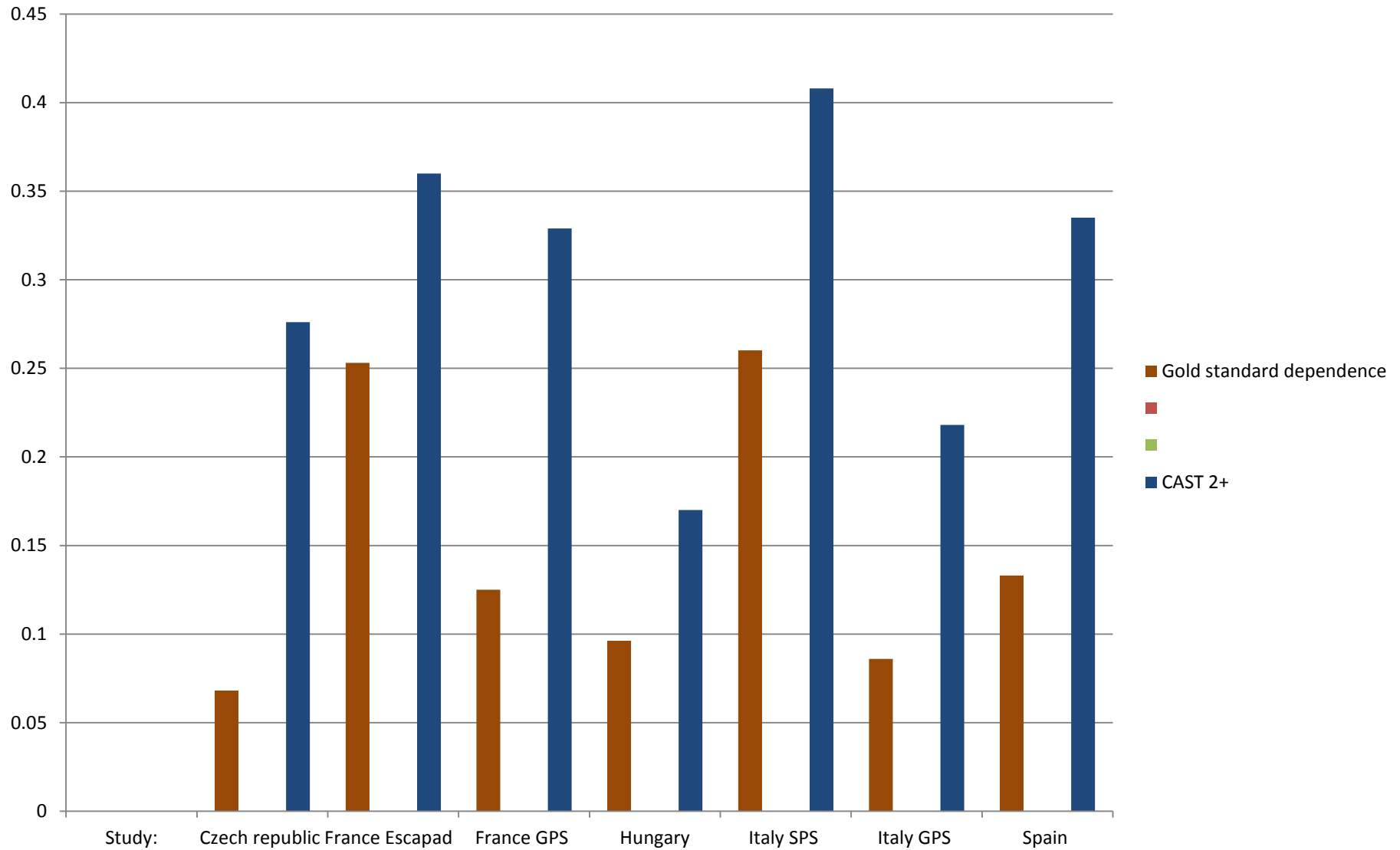
Logistic regression model - 1

Aim: To predict cannabis dependence from CAST score AND from additional demographic/ drug use behaviour information

Model building:

- Outcome variable: cannabis dependence (Y/N) according to gold standard (MCIDI-CD3)

- Dependent variables: CAST score, study, country, prevalence, poly drug use, type of study (GPS or SPS*), age, age at first use, gender// alcohol – smoking

Logistic regression model - 2

Table: Logistic regression analysis for cannabis dependence			
	All studies	GPS	SPS
	OR , {95%}	OR , {95%}	OR , {95%}
CAST score (0-6)	2.37 {2.23,2.53 }	3.13 {2.48,3.96 }	2.30 {2.15,2.46 }
Frequency of cannabis			
0 days	ref	--	ref
1-3 days	1.18 {0.99,1.40 }	--	1.21 {1.00,1.46 }
4-9 days	1.56{1.25,1.95 }	--	1.56 {1.22,2.00 }
10+ days	2.45{2.09,2.86 }	--	2.46 {2.07,2.91 }
Poly drug use			
0	ref	--	ref
1-3	1.56{1.34,1.82 }	--	1.52 {1.29,1.78 }
4 or more	4.03 {2.58,6.29 }	--	4.75 {2.87,7.86 }
Gender (ref:fem)	1.25 {1.02,1.54}	1.99{0.89,4.46 }	1.21 {0.97,1.51 }
Age[!]	!	0.97 {0.95,1.00}	!
<18 yrs	ref	--	--
18-25 yrs	0.84 {0.73,0.96 }	--	--
25+ yrs	0.37 {0.27,0.49 }	--	--
Gender x CAST score	0.85 {0.79,0.91 }	0.74{0.56,0.98 }	0.86{0.79,0.93 }
Age at first use	--	--	0.95 {0.91,0.99 }

[!] Age as continuous variable for the GPS only, -- Variables were not statistically significant in these models

Logistic regression model - 2

Table: Logistic regression analysis for cannabis dependence

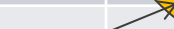|	All studies	GPS	SPS
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Odds of dependence increases with increasing frequency of drug use

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Odds of dependence increases with increasing number of drugs used

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> The effect of gender is different depending on CAST score. More specific, the odd of males being depended is higher that the one of females for low CAST scores and the association changes for higher scores.

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Increasing age is associated with decreasing odds of dependence.

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Comparison of different estimates
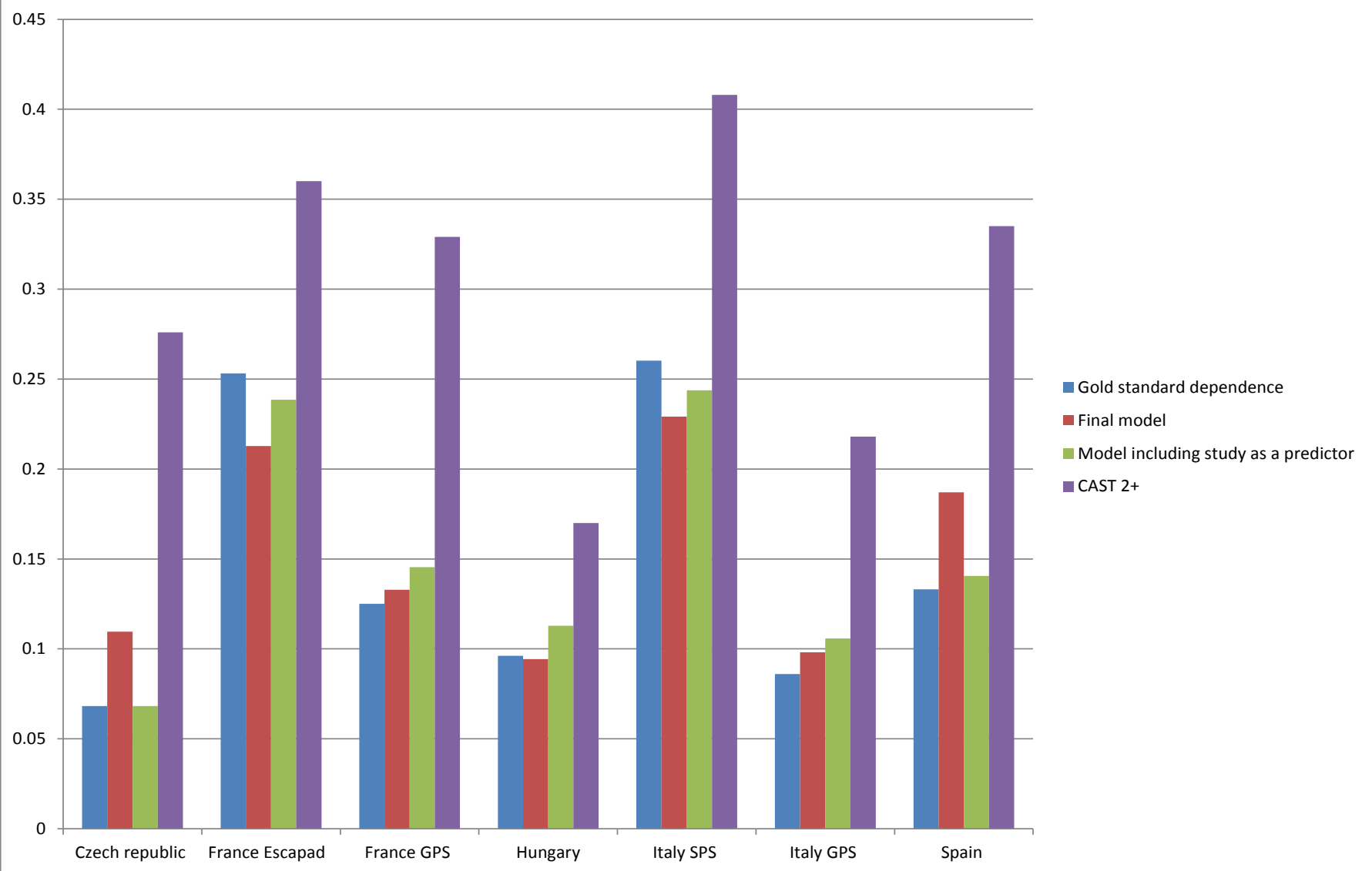
To summarize:

- Increasing CAST scores, frequency of use, number of drugs used are associated with higher odds of being dependent.

- Increasing age is associated with decreasing odds of being dependent

- There is an interaction between gender and CAST scores

- The model does not contradict with the published literature

HOWEVER:

- The model was the best one supported from the available data, but it is not the optimal.

- Countries should run their own models if the have the resources and they can use this only in lack of any other option

SDS

- Not as good psychometric properties as CAST

- Poorer predictor of cannabis dependence than CAST in our study

- However, similar associations were apparent (with the exception gender/ gender*SDS) and a formula can also be provided for countries that have only SDS

Content of the guidelines

- Rationale explanation, different concepts and literature overview (with short scales)

- Assets and drawbacks explained

- Guidelines of scale translation and adaptation

- National validation study guidelines (if decided)

- Practical issues of using scales (placement in the questionnaire, suggested codebook and SPSS syntaxes, formula to estimate prevalence of cannabis dependence)

- Interpretation of the results obtained, limitations

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Conclusion

To apply CAST if prevalence vs. sample size allows (own validation study would give even more precise results but can be relatively costly)

Reporting in form of both:

- raw CAST results and

- estimate of cannabis dependence prevalence

Future: evaluation of translation into policy making – GPS results vs. cannabis treatment demand and offer

Long-term: update of standards when and if needed

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