

# Characteristics of incident substance-induced psychosis compared to incident first episode psychosis:

## A nationwide register-linkage study from Sweden

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# Disclosures

- ▶ Research project funding: **The Finnish Foundation for Alcohol Studies**



# Background

- Previous studies suggest that substance-induced psychosis (SIP) have a high risk for conversion to schizophrenia or premature death <sup>1-4</sup>
- Less is known if the persons with SIP differ from persons with other type of first-episode psychosis (FEP) prior to the incident psychosis episodes

1, Murrie B, Lappin J, Large M, Sara G. Transition of Substance-Induced, Brief, and Atypical Psychoses to Schizophrenia: A Systematic Review and Meta-analysis. Vol. 46, Schizophrenia Bulletin. Oxford University Press; 2020. p. 505–16,

2, Kendler KS, Ohlsson H, Sundquist J, Sundquist K. Prediction of onset of substance-induced psychotic disorder and its progression to schizophrenia in a Swedish national sample. American Journal of Psychiatry. 2019;176(9):711–9. ,

3, Starzer MSK, Nordentoft M, Hjorthøj C. Rates and predictors of conversion to schizophrenia or bipolar disorder following substance-induced psychosis. American Journal of Psychiatry. 2018 Apr 1;175(4):343–50.

4. Hjorthøj, C., Madsen, T., Starzer, M., Erlangsen, A., & Nordentoft, M. (2021). Mortality in substance-induced psychosis: a register-based national cohort study. *Addiction*, 116(12).

# Aims

Aim is to study if

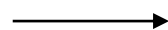
- 1, there is difference in previous **psychiatric diagnoses** and
- 2, **working life-related factors**

between persons with SIP and FEP prior to the incident psychosis episodes

***”Who are patients with SIP?”***

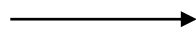
SIP = Substance-Induced Psychosis FEP= First-episode psychosis

Persons treated due to SIP (F1X.5)  
during 2006-2016, N=11239



**Exclusion:** Age limited to 16-65  
(N=464)

Working aged persons with SIP  
(N=10755)



**Exclusion** due to previous:  
Psychotic disorders N=2793 (F20-F29)  
Organic catatonic disorder N=1 (F06.1)  
Mania or bipolar disorder N=515 (F30-F31)  
Late-onset or residual substance-induced disorders N=126 (F10.7-F19.7)

Persons with SIP N=7320



Matching 1:1 FEP controls according to age,  
gender and calendar year



N=7320 persons with SIP and N=7320 persons with FEP

# Registers used

## **National Patient Register (NPR)**

containing information of inpatient and specialized outpatient care. NPR contains recorded data for date of admission and discharge, main and secondary diagnosis (inpatient periods recorded since 1964, specialized outpatient visits since 2001).

## **The Longitudinal for Health Insurance and Labor Market Studis (LISA)**

containing various sociodemographic variables including e.g. acquired source and level of income, education, occupational status, place of residence and country of birth.

## **Micro-data for analyses of social insurance**

including data on dates and diagnosis of sickness absence and disability pension.

## **The Total Population Register**

containing sociodemographic information on all residents in Sweden.

## **Cause of death register**

including information on date and causes of death.

## **The Multi-generation Register**

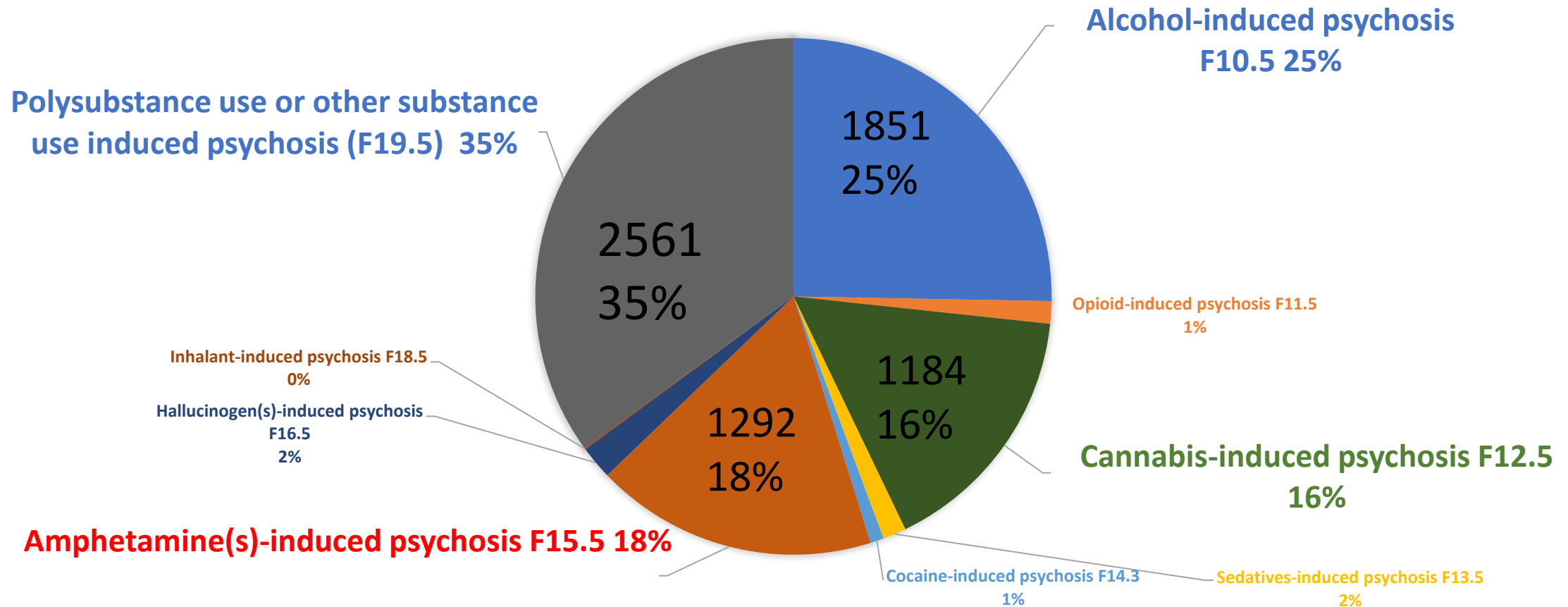
including information on parents and allows linkage to siblings.

## **Prescribed drug register (PDR)**

including all dispensed drugs at Swedish pharmacies since July 2005



# Distribution of different SIP subgroups

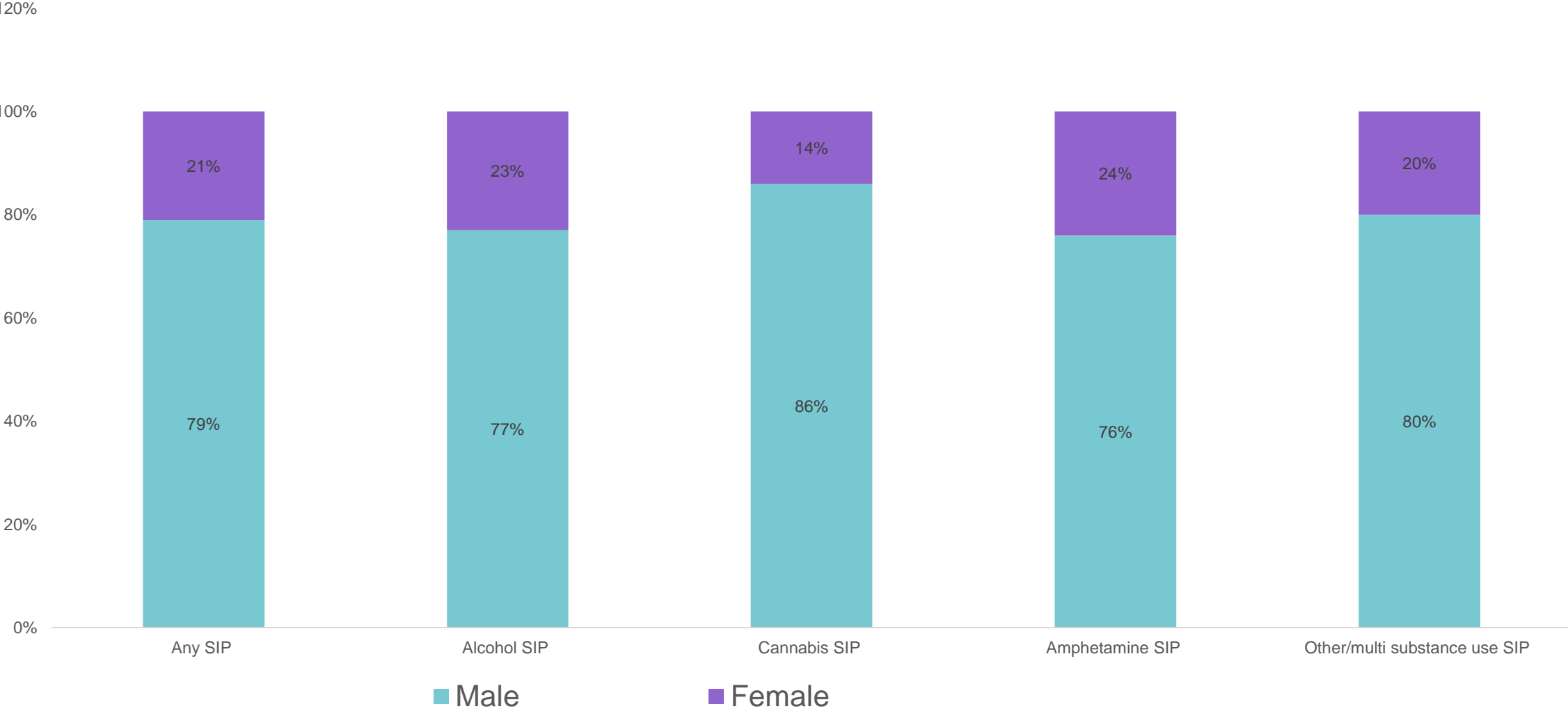


# Distribution of psychosis diagnoses among the FEP controls for any SIP

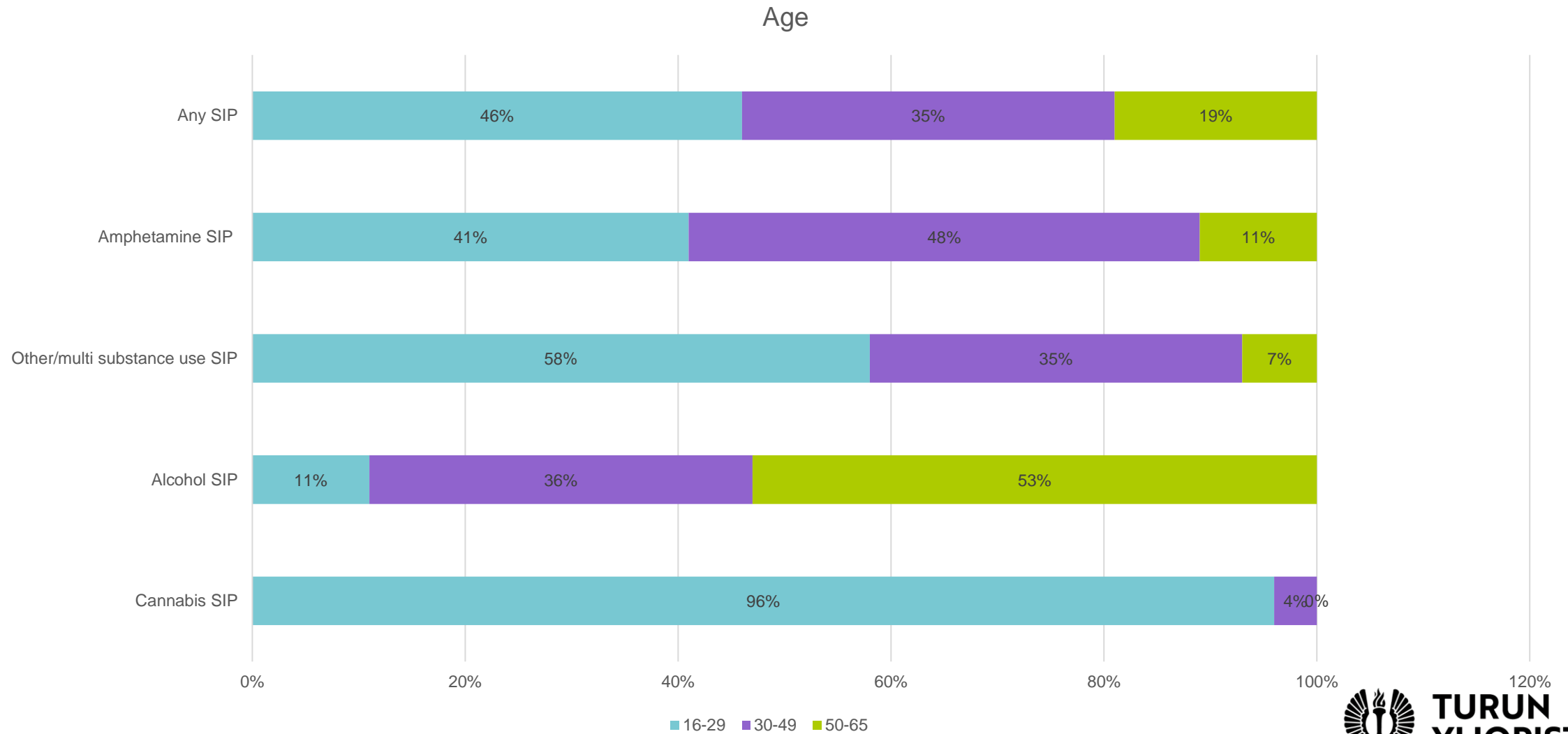
ICD-10 dg	n	%	
F20	697	9,52	Range 7% - 12%
F21	131	1,79	
F22	1022	13,96	
F23	2121	28,98	
F24	14	0,19	
F25	297	4,06	
F28	129	1,76	
F29	2909	39,74	Range 33% - 45%



# Gender distribution



# Age distribution



# Results: Psychiatric comorbidity

Psychiatric Disorder	FEP N	FEP %	SIP	SIP %	OR (95%CI)
<b>Any psychiatric disorder</b>	<b>4431</b>	<b>61 %</b>	<b>5667</b>	<b>77%</b>	<b>2.20 (2.04-2.37) *</b>
Previous substance use-related diagnosis	1630	22 %	4996	68%	7.20 (6.58-7.88) *
Anxiety disorder	2682	36%	2646	36%	0.98 (0.91-1.05)
Depression	2126	29%	1804	25%	0.80 (0.74-0.86)*
<b>ADHD</b>	<b>656</b>	<b>9%</b>	<b>1057</b>	<b>14%</b>	<b>1.76 (1.58-1.96) *</b>
Eating Disorder	119	9%	74	1%	0.61 (0.45-0.82)*
Personality Disorder	818	11%	852	11%	1.05 (0.94-1.16)
Mental Retardation	306	4.1%	98	1%	0.3 (0.24-0.39)*
Autism Spectrum Disorder	416	6%	185	3%	0.42 (0.35-0.51)*
<b>Suicide Attempt</b>	<b>827</b>	<b>11%</b>	<b>1683</b>	<b>23%</b>	<b>2.38 (2.16-2.61)</b>

SIP = Substance-induced psychosis FEP=First-episode psychosis OR=Odds Ratio  
\*statistically significant

# Psychiatric comorbidity in SIP compared to their FEP controls

Results of the multivariable logistic regression analyses<sup>1</sup> of psychiatric comorbidity, FEP cases as a comparison group.

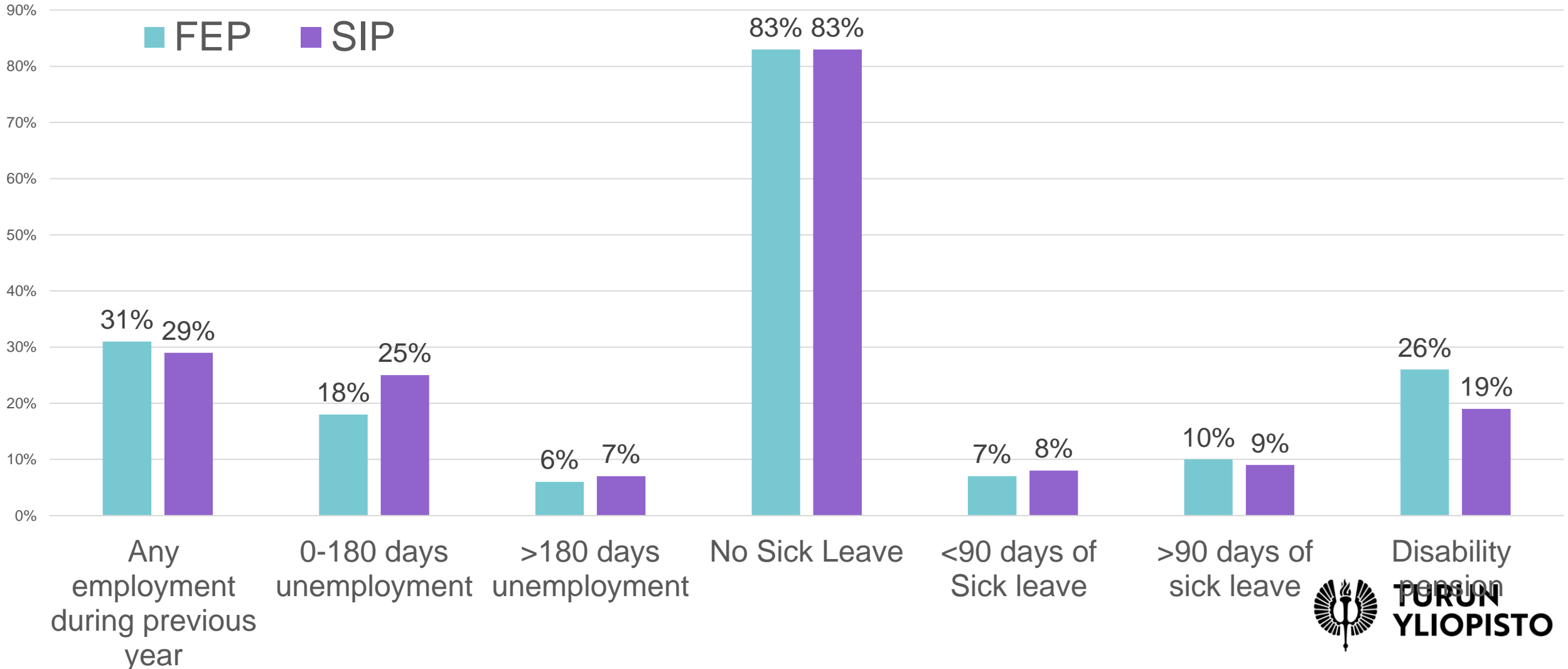
	Any SIP (n=7320)	Alcohol SIP (n=1851)	Cannabis SIP (n=1184)	Amphetamine SIP (n=1292)	Multi-use/other SIP (n=2561)
	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)
Substance dependence	4.71 (4.10-5.41)*	9.64 (7.29-12.74)*	3.49 (2.42-5.02)*	3.34 (2.37-4.70)*	3.12 (2.45-3.97)*
Anxiety disorders	0.86 (0.79-0.94)*	0.92 (0.76-1.12)	0.58 (0.47-0.72)*	0.74 (0.59-0.93)	1.13 (0.98-1.32)*
Depression	0.71 (0.65-0.78)*	0.78 (0.64-0.95)*	0.72 (0.58-0.89)*	0.62 (0.49-0.79)*	0.73 (0.62-0.86)
ADHD	1.54 (1.35-1.76)*	0.72 (0.47-1.09)	1.18 (0.88-1.58)	<b>2.88 (2.02-4.09)*</b>	1.80 (1.47-2.20)*
Autism spectrum disorder	0.35 (0.28-0.43)	0.34 (0.18-0.65)*	0.36 (0.23-0.56)*	0.40 (0.23-0.70)	0.28 (0.20-0.39)
Suicide attempt	2.21 (1.97-2.47)	<b>3.27 (2.50-4.28)</b>	1.06 (0.79-1.43)	<b>2.62 (1.97-3.48)*</b>	<b>2.12 (1.76-2.54)*</b>

<sup>1</sup>Adjusted with education level, family situation, dwelling, country of origin and Charlson comorbidity index .

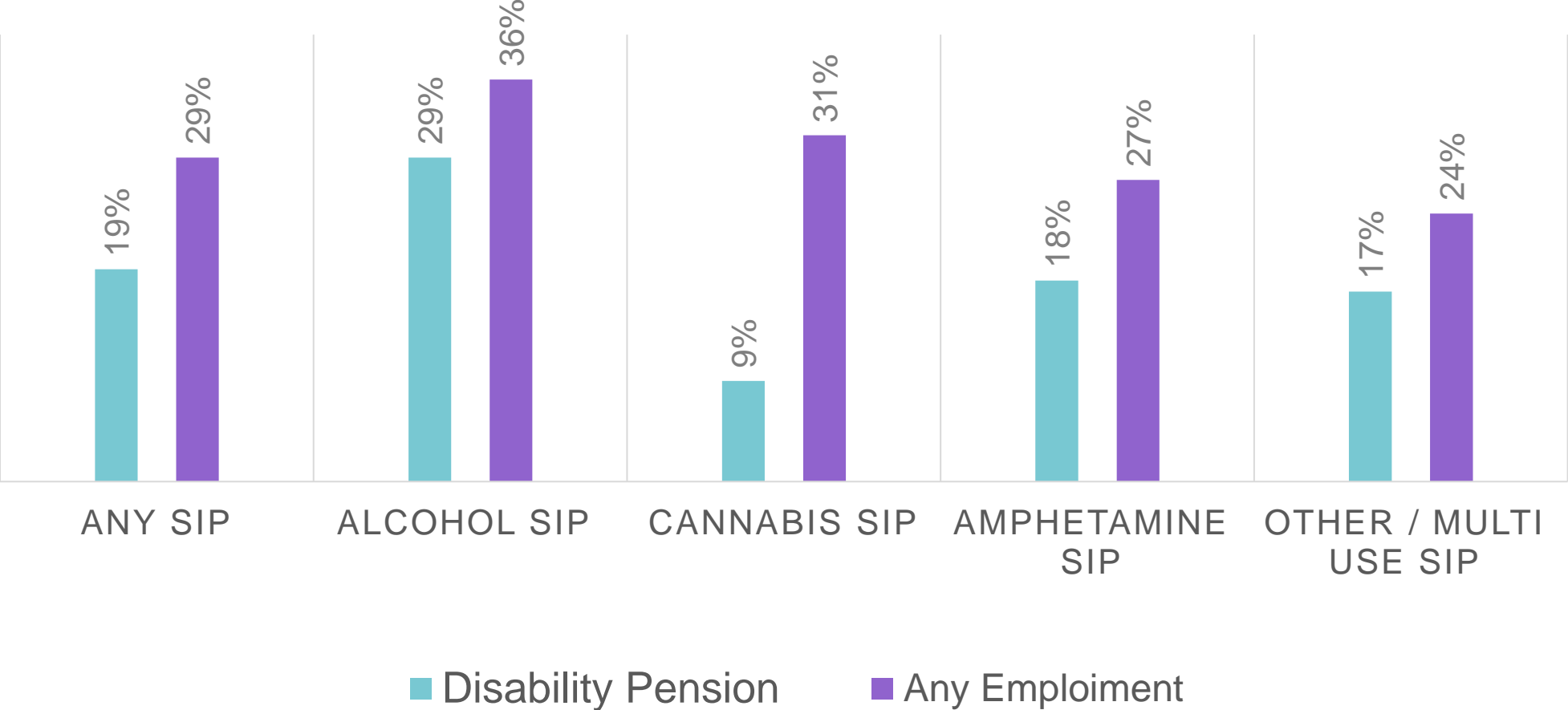
# Results: work-related factors during previous calendar year

	FEP	FEP%	SIP	SIP%	OR (95% CI)
Any employment during previous year	2279	31%	2148	29%	0.92 (0.85-0.98)
Unemployment					
0-180 days unemployment	1362	18%	1800	25%	1.18 (1.07-1.31)
>180 days unemployment	428	6%	505	7%	1.05 (0.89-1.25)
No Sick Leave	6041	83%	6068	83%	1
<90 days sick leave	548	7%	622	8%	1.13 (1.00-1.27)
>90 days sick leave	731	10%	630	9%	0.86 (0.76-0.96)*
Disability pension	1926	26%	1366	19%	0.59 (0.54-0.65)*

# Employment, sick leave and disability pension among SIP and FEP



# Employment and disability pension by SIP type



# Strengths and limitations

- Register data contains information of all diagnosed SIP cases during 2006-2016 (strength)
- To our knowledge, there is no previous study in this extend that describe the prior sociodemographic, work-related and psychiatric comorbidity characteristics and differences between SIP and FEP (strength)
- Validity of diagnosis is not known (limitation)



# Conclusion

- 77% of patients with SIP had any psychiatric diagnosis before incident psychosis (vs. 61% in patients with FEP) and 23% had history of suicide attempt
  - patients are met in health care system before SIP
- Psychiatric diagnosis differ between SIP subgroups indicating that the etiology may be different:
  - Patients with cannabis-induced psychosis are younger, and raises question are they that different from patients with other FEP?
  - Rates of previous suicide attempts and ADHD seem to be higher in persons with amphetamine induced psychosis
- Working life –related factors hint that patients with SIP might be not in school/ not employed / not in sick leave

# Research team

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**Thank you! Questions?**