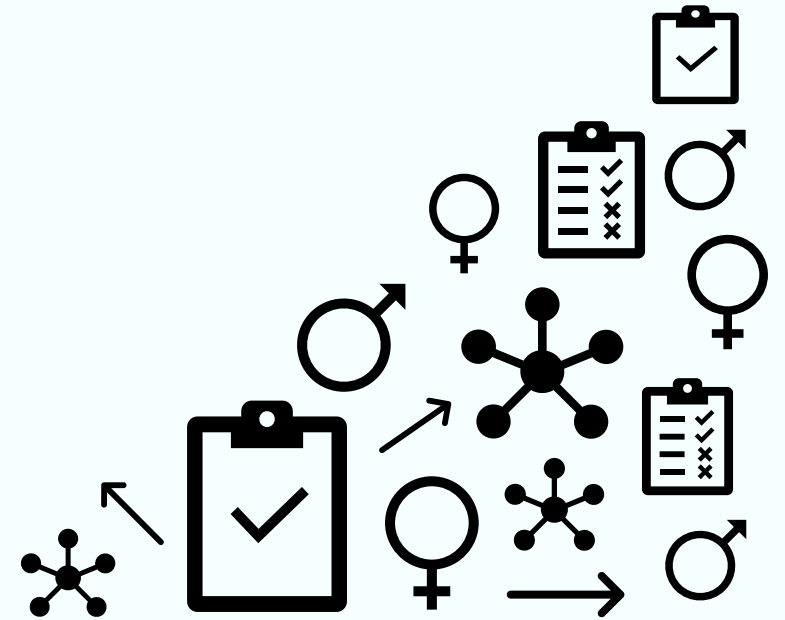

GENDER DIFFERENCES IN CANNABIS USE DISORDER SYMPTOMS: A NETWORK ANALYSIS

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NO CONFLICTS OF INTEREST TO DISCLOSE

BACKGROUND

- Cannabis users: ♂♂ vs. ♀
- Gender differences: acute effects, withdrawal & use trajectories
- Cannabis use disorder (CUD):




METHODS

- Weekly cannabis users
- Measures:
 - DSM-5 CUD symptoms
 - Plans to quit or reduce use
 - Daily tobacco smoking
 - Lifetime diagnosis of mood, anxiety or externalizing disorders
- Look at gender differences in:
 - Prevalence of CUD symptoms
 - Associations between CUD symptoms (Ising model network analysis)
 - Associations with comorbidity, tobacco use and plans to quit or reduce use?

N = 1257

59% 

41% 

GENDER DIFFERENCES: CUD SYMPTOMS

CUD score

♂ \approx ♀ 5.2/4.7 Similar average – moderate severity

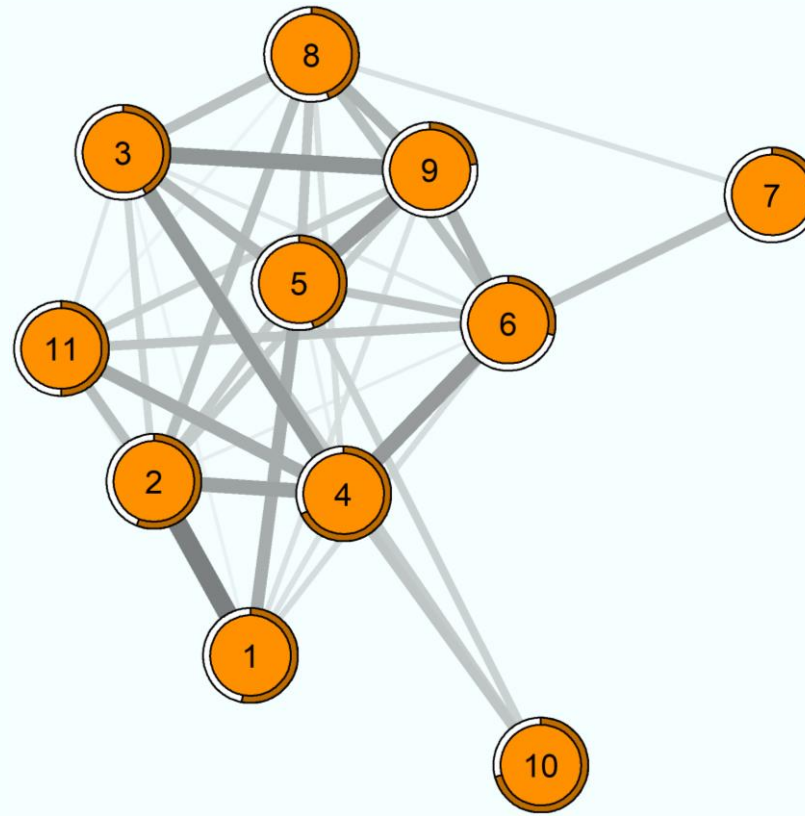
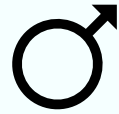
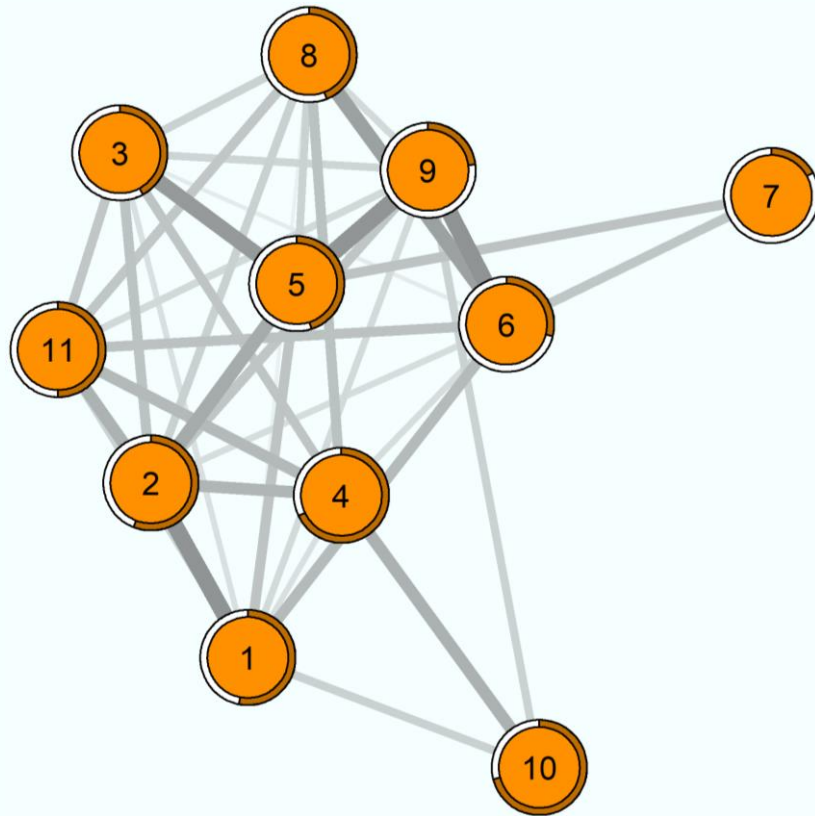
CUD symptoms

♂ \approx 5 ♀ Use more, Craving, Health, Activities, Withdrawal

♂ $>$ ♀ 6 Failed reduce/quit, Time, Responsibilities, Social, Risky use, Tolerance

♂ $<$ ♀ 0 None

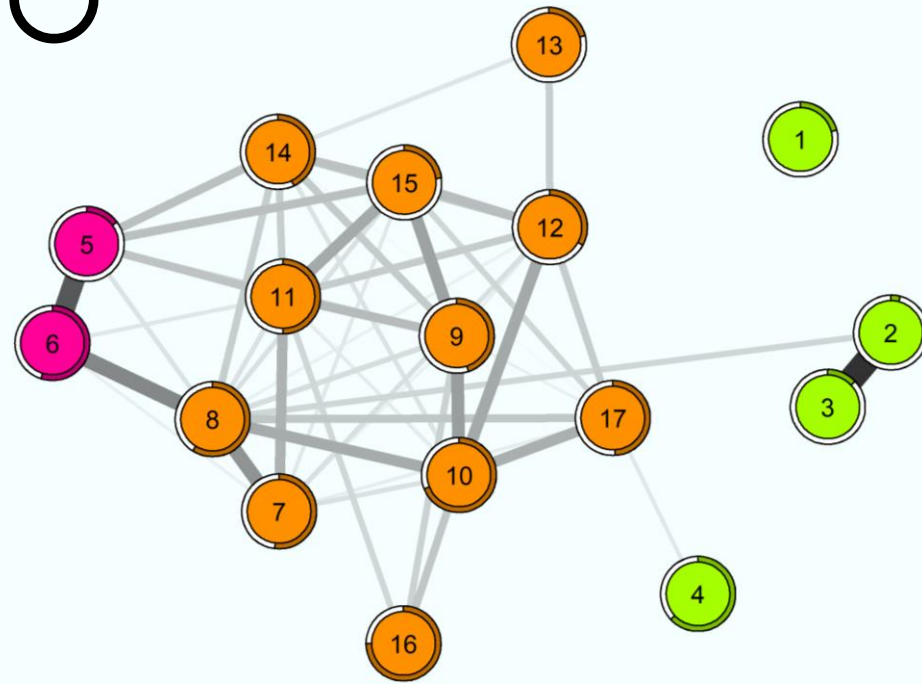
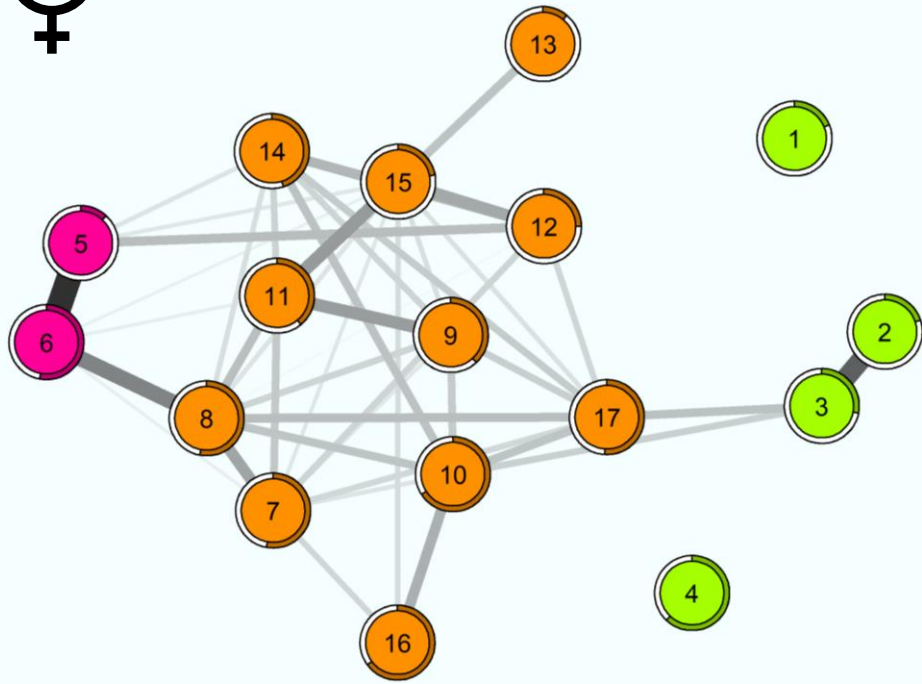
GENDER DIFFERENCES: SYMPTOM NETWORK



CUD symptoms ●

1. Use more
2. Reduce/quit attempt
3. Time investment
4. Craving
5. Responsibilities
6. Social effects
7. Risky use
8. Health effects
9. Less activities
10. Tolerance
11. Withdrawal

ASSOCIATIONS WITH CUD SYMPTOMS



- Comorbidities ●
- 1. Externalizing diagnosis
- 2. Anxiety diagnosis
- 3. Mood disorder diagnosis
- 4. Daily smoking
- Plans ●
- 5. Plan to quit
- 6. Plan to reduce
- CUD symptoms ●
- 7. Use more
- 8. Reduce/quit attempt
- 9. Time investment
- 10. Craving
- 11. Responsibilities
- 12. Social effects
- 13. Risky use
- 14. Health effects
- 15. Less activities
- 16. Tolerance
- 17. Withdrawal

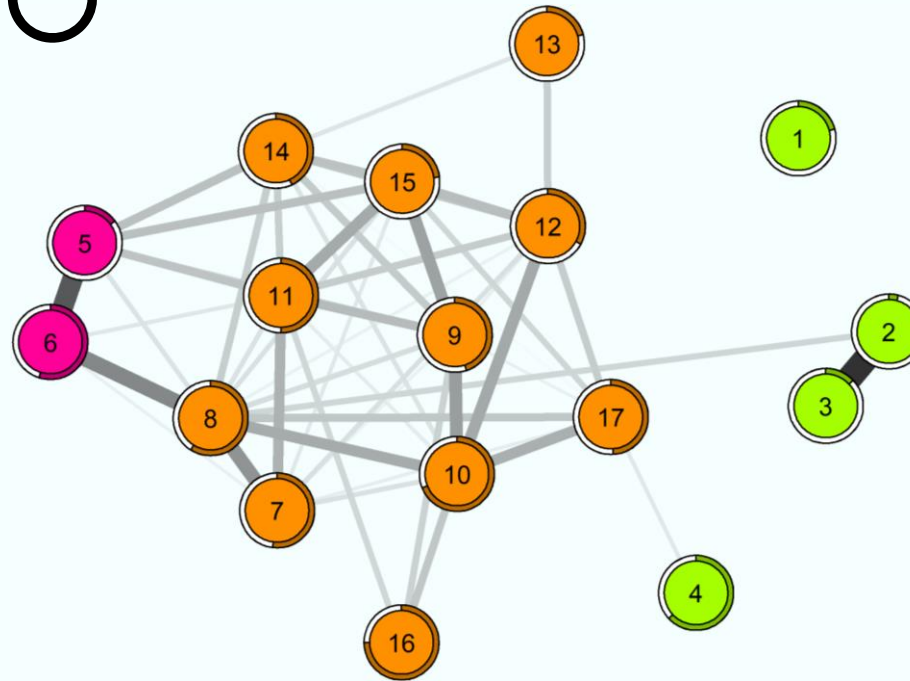
MEN

- Mood disorder (3) – disorder (2)

Anxiety 

- Anxiety disorder (2) – Failed reduce/quit attempts (8)

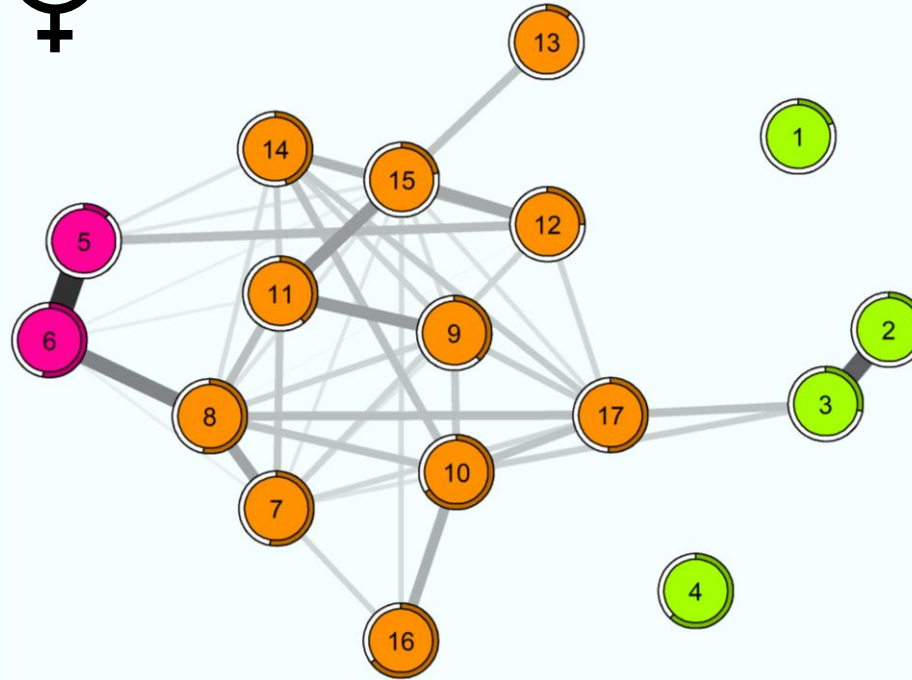
- Comorbid anxiety diagnosis could negatively affect quit/reduce attempts in men?



- Comorbidities ●
1. Externalizing diagnosis
 2. Anxiety diagnosis
 3. Mood disorder diagnosis
 4. Daily smoking
- Plans ●
5. Plan to quit
 6. Plan to reduce
- CUD symptoms ●
7. Use more
 8. Reduce/quit attempt
 9. Time investment
 10. Craving
 11. Responsibilities
 12. Social effects
 13. Risky use
 14. Health effects
 15. Less activities
 16. Tolerance
 17. Withdrawal
-

WOMEN

- Anxiety disorder (2) –
Mood disorder (3)
- Mood disorder (3) –
Craving (11) & Withdrawal (17)
- Self-medication processes
more prominent women?



- Comorbidities ●
1. Externalizing diagnosis
 2. Anxiety diagnosis
 3. Mood disorder diagnosis
 4. Daily smoking
- Plans ●
5. Plan to quit
 6. Plan to reduce
- CUD symptoms ●
7. Use more
 8. Reduce/quit attempt
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 13. Risky use
 14. Health effects
 15. Less activities
 16. Tolerance
 17. Withdrawal
-

TAKE HOME MESSAGE

1. Gender differences in prevalence of specific CUD symptoms ✓
2. No gender differences in general CUD network structure, strength or centrality ✗
3. Gender differences in the associations between CUD symptoms and comorbid diagnoses ✓

Preprint



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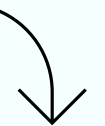


UvA

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SAMPLE CHARACTERISTICS

Measure		Women (N = 512)		Men (N = 745)		Total (N = 1257)		Comparison test
		M (SD)	Mdn	M (SD)	Mdn	M (SD)	Mdn	
General	Age	21.8 (3.2)	21	21.6 (3.1)	21	21.7 (3.1)	21	$U = 184529.50, p = .32$
Cannabis use	CUD severity score	4.7 (2.9)	4	5.2 (3.0)	5	5.0 (3.0)	5	$U = 209065.50, p = .004$
	Last year days per week	5.1 (2.1)	6	5.5 (1.8)	6	5.3 (1.9)	6	$U = 210461.50, p < .001$
	Plans to reduce	N = 270 (52.7%)		N = 409 (54.9%)		N = 679 (54.0%)		$\chi^2(1, N = 1255) = .65, p = .42$
	Plans to quit	N = 59 (11.5%)		N = 114 (15.3%)		N = 173 (13.8%)		$\chi^2(1, N = 1255) = 3.72, p = .05$
Other substance use	Daily cigarette use	N = 317 (61.9%)		N = 472 (63.4%)		N = 789 (62.8%)		$\chi^2(1, N = 1257) = .27, p = .60$
	AUDIT score	7.2 (4.9)	6	8.4 (5.7)	7	7.9 (5.4)	7	$U = 211899.50, p < .001$
	Other substance use	76.3 (204.1)	20	112.9 (573.8)	22	98.0 (460.8)	21	$U = 201795.00, p = .08$
Mental Health	Mood disorder	N = 143 (27.9%)		N = 96 (12.9%)		N = 239 (19.0%)		$\chi^2(1, N = 1257) = 44.60, p < .001$
	Anxiety disorder	N = 97 (19.9%)		N = 30 (4.0%)		N = 127 (10.1%)		$\chi^2(1, N = 1257) = 74.36, p < .001$
	Externalizing disorder	N = 95 (18.6%)		N = 159 (21.3%)		N = 254 (20.2%)		$\chi^2(1, N = 1257) = 1.46, p = .23$

Note: AUDIT = alcohol use disorder identification test; CUD = cannabis use disorder; M = mean; Mdn = median; SD = standard deviation

GENDER DIFFERENCES SYMPTOM PREVALENCE

Symptom	Women (N = 512)	Men (N = 745)	Comparison test	Result	Total (N = 1257)
	N (%)	N (%)			N (%)
1 Use more	273 (53.3%)	385 (52.2%)	$\chi^2 = (1, N = 1257) = 0.15, p = .74$	M ≈ W	662 (52.7%)
2 Reduce or quit	270 (52.7%)	437 (58.6%)	$\chi^2 = (1, N = 1257) = 4.33, p = .04$	M > W	707 (56.2%)
3 Time investment	194 (37.9%)	333 (44.7%)	$\chi^2 = (1, N = 1257) = 5.78, p = .02$	M > W	527 (41.9%)
4 Craving	340 (66.4%)	512 (68.7%)	$\chi^2 = (1, N = 1257) = 0.75, p = .39$	M ≈ W	852 (67.8%)
5 Responsibilities	201 (39.3%)	369 (49.5%)	$\chi^2 = (1, N = 1257) = 12.92, p < .001$	M > W	570 (45.3%)
6 Social effects	126 (24.6%)	244 (32.8%)	$\chi^2 = (1, N = 1257) = 9.69, p = .002$	M > W	370 (29.4%)
7 Risky use	56 (10.9%)	154 (20.7%)	$\chi^2 = (1, N = 1257) = 20.66, p < .001$	M > W	210 (16.7%)
8 Health effects	230 (44.9%)	320 (43.0%)	$\chi^2 = (1, N = 1257) = 0.48, p = .49$	M ≈ W	550 (43.8%)
9 Less activities	114 (22.3%)	174 (23.4%)	$\chi^2 = (1, N = 1257) = 0.20, p = .65$	M ≈ W	288 (22.9%)
10 Tolerance	331 (64.6%)	559 (75.0%)	$\chi^2 = (1, N = 1257) = 15.83, p < .001$	M > W	890 (70.8%)
11 Withdrawal	263 (51.4%)	367 (49.3%)	$\chi^2 = (1, N = 1257) = 0.54, p = .46$	M ≈ W	630 (50.1%)

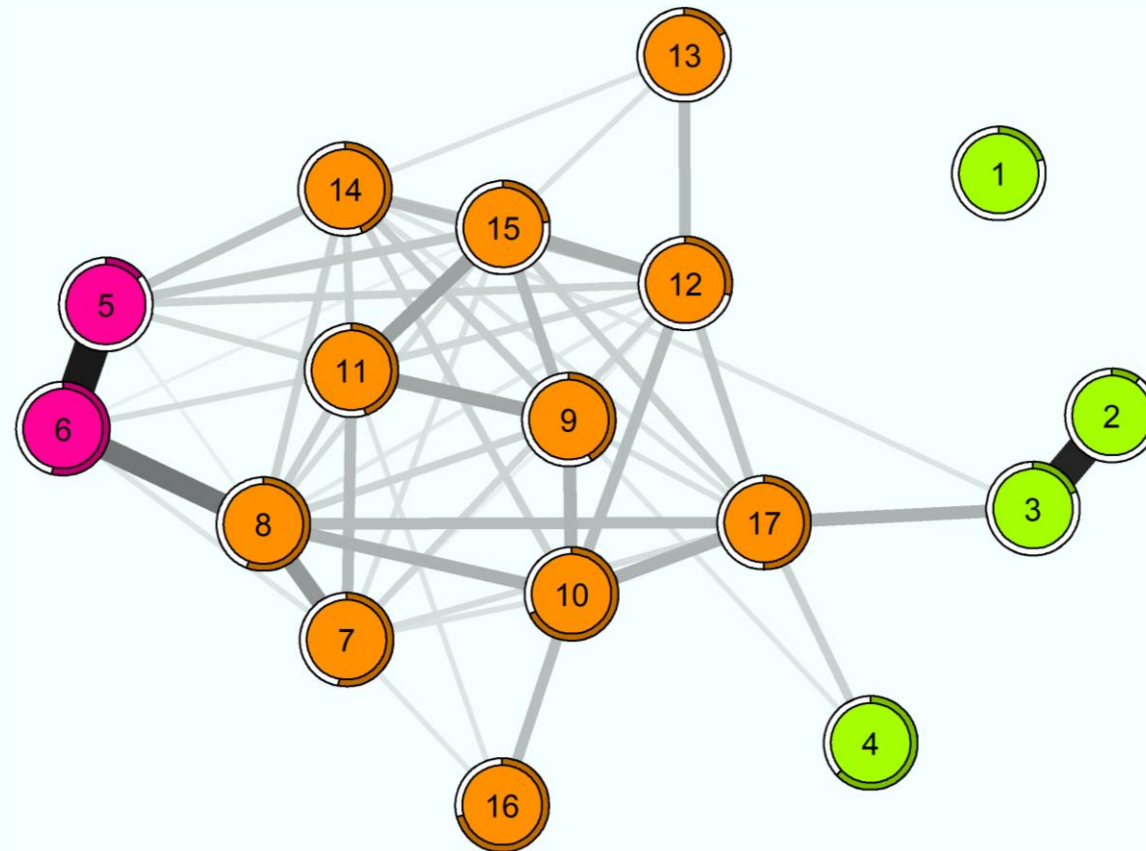
Note: N and percentages reflect the number and the percentage of individuals that reported experiencing the presented symptom; Bold text reflects the symptoms with significant gender differences; M = Men, W = Women.

GENERAL SYMPTOM NETWORK

- Highly connected!

Exceptions:

- Risky use & Tolerance
- Externalizing diagnosis
- Daily smoking



- Comorbidities ●
1. Externalizing diagnosis
 2. Anxiety diagnosis
 3. Mood disorder diagnosis
 4. Daily smoking
- Plans ●
5. Plan to quit
 6. Plan to reduce
- CUD symptoms ●
7. Use more
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