Premonitory urge and tic severity, comorbidities, and quality of life in chronic tic disorders

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Background

Tics have been found to be intimately associated with premonitory urges (PU) but knowledge about urges is still limited, with small sample sizes often limiting the generalizability of findings.

Research questions

1) Is tic severity associated with urge severity?
2) How common is relief after tic execution?
3) Which comorbidities are associated with urges?
4) Are urges, tics, and comorbidities associated with lower quality of life?
5) Can complex and simple, motor and vocal tics be differentiated based on PU?

Methods

N = **291** patients with a confirmed diagnosis of chronic primary tic disorder (age=18-65, 24% female) filled out **an online survey** assessing demographic data, comorbid conditions, location, quality, and intensity of PU, as well as quality of life.

Results

1) PU and tic severity were significantly associated.
2) PU was usually described as sensation of tension or pressure and building up energy (Figure 1A).
3) Motor and vocal, complex and simple tics did not differ regarding PU intensity, frequency, and quality, or relief (Figure 1B and 1D).
4) Urge intensity was comparable between different types of PU (Figure 1C).
5) 85% of urge-related tics were followed by **relief**.
6) A diagnosis of **attention deficit/hyperactivity disorder (ADHD)** or **depression**, **female** gender, and **older** age increased the likelihood of experiencing PU (Table 1).
7) More **obsessive-compulsive symptoms (OCS)** and **younger** age were associated with higher urge intensities (Table 1).
8) Different comorbidities were related to experiencing more intense urges of different qualities (Figure 2).
9) PU, complex vocal tics, ADHD, OCS, anxiety, and depression were related to **lower quality of life** (Table 2).

Figure 1A: Total number of patients who reported experiencing each urge quality associated with at least one of their tics.
Figure 1 B: Percentage of patients that reported each urge quality for at least one type of tics.
Figure 1C: Average urge intensity associated with different urge qualities.
Figure 1D: Percentage of tics associated with different types of urge quality.
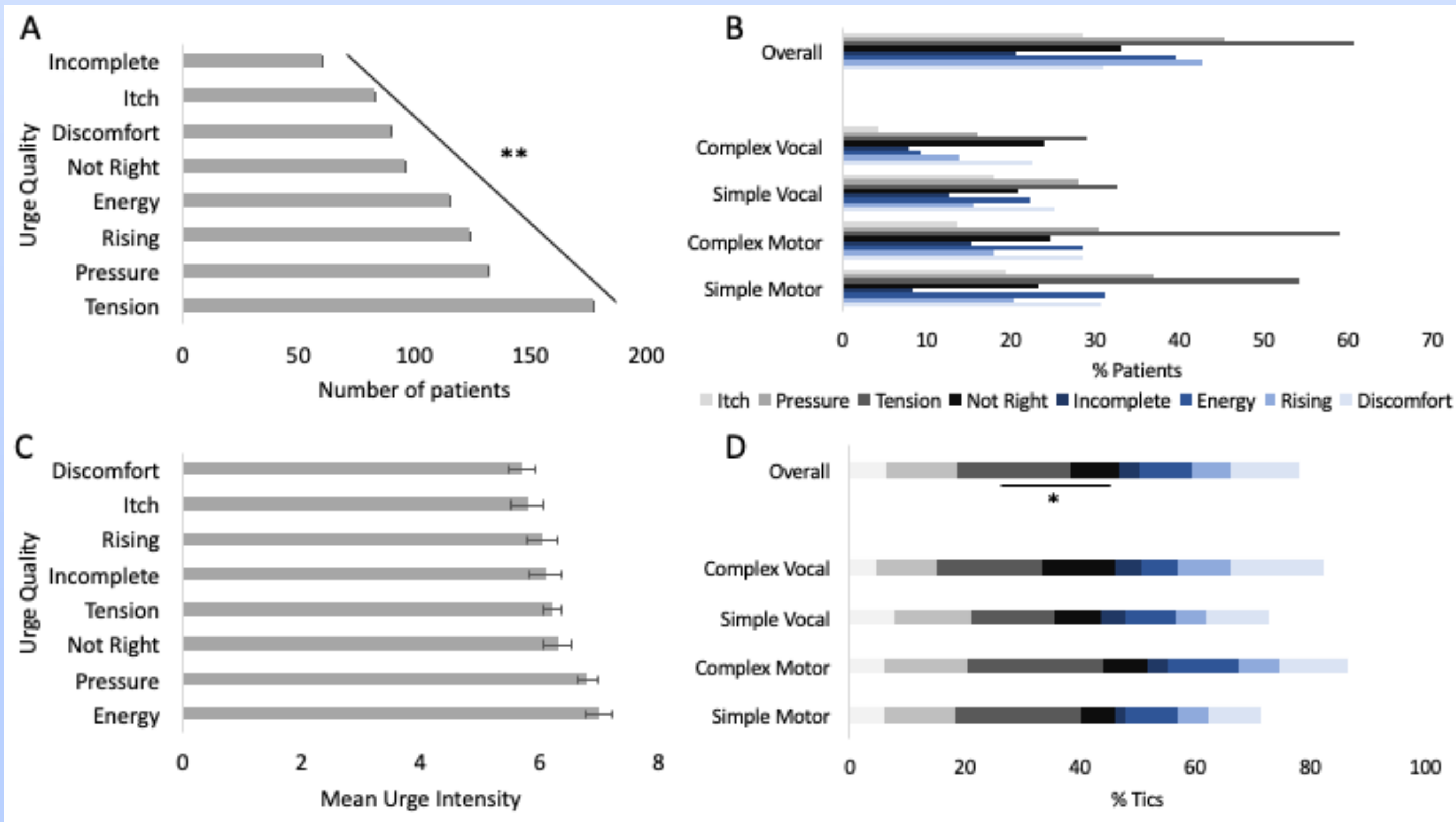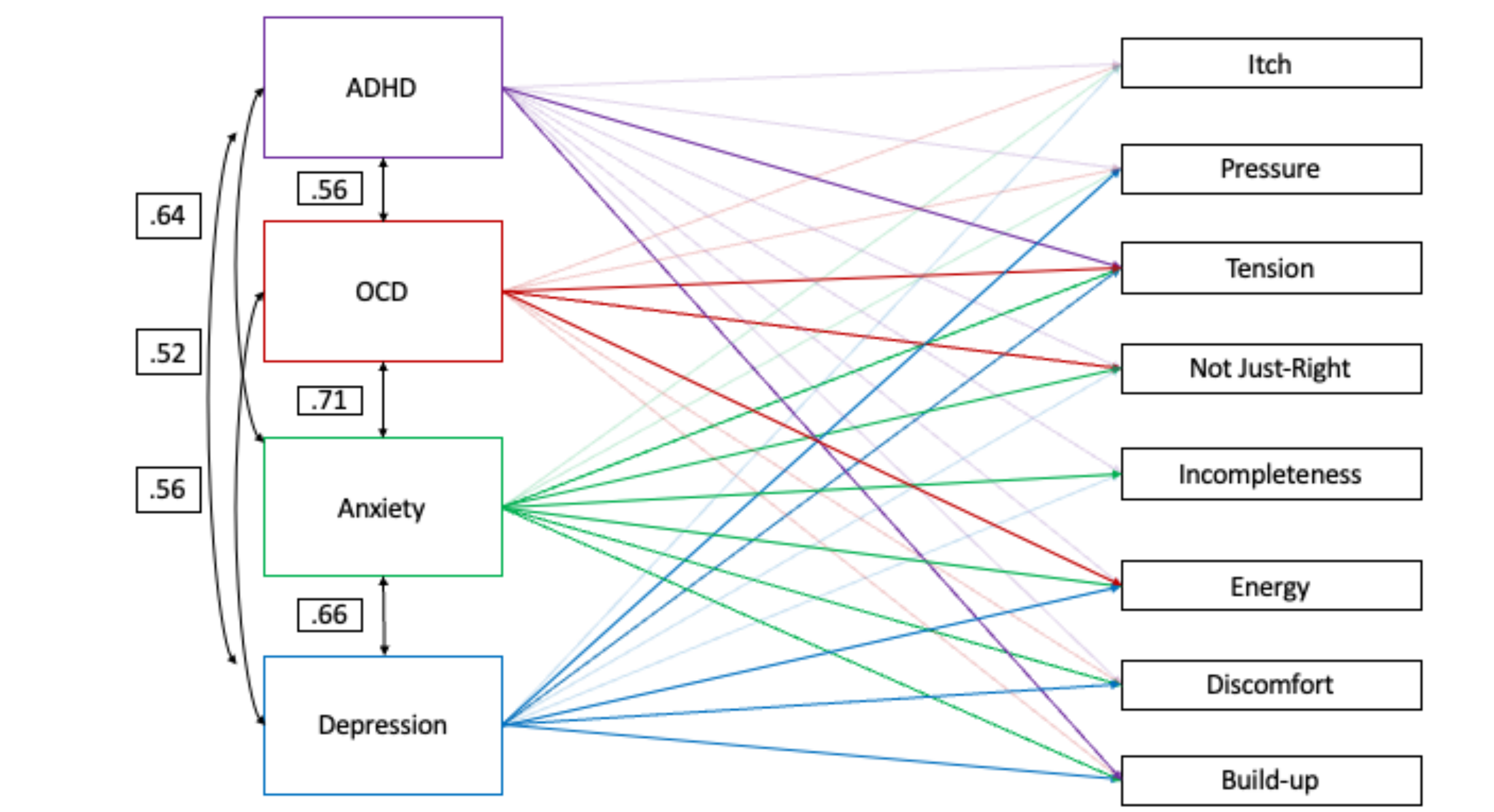

Figure 2. Structural equation model. Significant beta values are displayed in the model. Correlations amongst the predictors are also displayed.

ADHD = attention deficit hyperactivity disorder OCD = obsessive compulsive disorder.

Table 1. Regression predicting urges from comorbidities

	B	S.E.	Wald	OR	p
Constant	-2.83	1.15	6.04	.06	.014
OCD	-.63	.34	3.38	1.88	.066
Anxiety	.21	.51	.17	.81	.683
Depression	2.07	.78	7.03	.13	.008
ADHD	2.66	1.05	6.49	.07	**.011**
Sleep	.37	.83	.20	.69	.653
Personality	-.25	.90	.08	1.28	.783
Age	.55	.19	8.37	1.73	**.004**
Gender	2.76	1.04	7.10	15.83	**.008**
	B	S.E.		Beta	p
Constant	5.66	.43			.000
ADHD	.02	.03		.04	.613
OCD	.03	.01		.22	**.017**
Anxiety	.01	.01		.06	.550
Depression	.00	.01		-.02	.774
Age	-.24	.10		-.16	**.017**
Gender	.38	.26		.10	.150

Table 2. Variables that predict quality of life

	B	S.E.	ß	t	p
(Constant)	1.08	2.24		.48	.632
N Simple Motor Tics	.10	.21	.02	.49	.625
N Complex Motor Tics	.50	.29	.09	1.69	.091
N Simple Vocal Tics	-.12	.31	-.02	-.39	.699
N Complex Vocal Tics	1.85	.55	.14	3.34	**.001**
ADHD-SB	1.10	.15	.29	7.51	**<.001**
OCI-R	.17	.06	.11	2.60	**.010**
BAI	.36	.08	.23	4.52	**<.001**
BDI-II	.63	.08	.32	8.10	**<.001**
Itch	.47	1.38	.01	.34	.734
Pressure	.66	1.47	.02	.45	.652
Tension	-.58	1.62	-.01	-.36	.720
Just right	.20	1.58	.00	.21	.901
Incomplete	-3.00	1.63	-.06	-1.85	.066
Energy	-.47	1.32	-.01	-.35	.725
Discomfort	.35	1.85	.01	.19	.852
Build-up	-1.11	1.99	-.03	-.56	.576
Age	-.39	.52	-.02	-.76	.450
Gender	-.67	1.44	-.01	-.47	.641

BDI-II = Beck Depression Inventory II, BAI=Beck Anxiety Inventory.

The upper panel shows a binary logistic regression with diagnosis (yes / no) as predictor variables and experiencing urges (yes / no) as the dependent variable.
The lower panel shows the results of a linear regression, predicting urge intensity from questionnaire data. OCD – obsessive compulsive disorder, ADHD – attention deficit hyperactivity disorder

Conclusions

1. **PU and tic severity are significantly associated.**
2. **Majority of patients with tics experience feeling of relief after tic execution.**
3. **Co-existing ADHD and depression increase the risk of PU.**
4. **Different types of tics did not differ regarding PU intensity, frequency, and quality, or relief**