

Psychiatric comorbidities in patients with mass social media-induced illness presenting with Tourette-like behavior

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BACKGROUND

For the past 3 years we are faced with an outbreak of a new type of **mass sociogenic illness (MSI)** presenting with **functional Tourette-like behaviors (FTB)**. Remarkably, symptoms spread solely via social media, while so far it was believed that for an outbreak of MSI personal contact among affected individuals is needed¹. We identified the protagonist of the German YouTube channel "Gewitter im Kopf"² (English: "Thunderstorm in the brain") who acts as the virtual index person of this outbreak in Germany, since patients presenting in our specialized outpatient clinic showed similar or even identical symptoms. Meanwhile, FTB became a global phenomenon presumably spread via numerous influencers on several social media channels including YouTube and TikTok. Here, we present a detailed clinical characterization of psychiatric comorbidities in patients with **mass social media-induced illness**³ (MSMI) presenting with FTB.

METHODS

Based on a thorough neuropsychiatric examination, and a newly developed semi-structured interview, we prospectively collected data of patients with regard to FTB, psychopathology, and diagnostic criteria for Tourette syndrome (TS) as well as medical history.

Results were compared to a large sample of patients with primary tic disorders ($n=1032$ including 529 children, $n=235$ females) from our center by using t-tests and Fisher's exact tests. Patients with MSMI-FTB only were compared to patients with MSMI-FTB and comorbid TS using the same statistical tests.

RESULTS

Sample

- patients with Social Media-induced FTB: $n = 32$
- women: $n=16$ (50%)
- age: mean=20,1 Jahre, range=11-53 Jahre, median=18 Jahre

Comorbidities overall

In all but two patients ($n=30$; 93.8%), further comorbid psychiatric and psychological symptoms were found (mean: 4.3, range: 0-9, median: 4). In 24 patients (75%; mean: 2.4, range: 0-12, median: 2) coexisting somatic diseases were identified.

Psychiatric comorbidities
Tourette syndrome ($n=$; 53%)
Obsessive-compulsive behavior (OCB) ($n=15$, 46.9%)
Anxiety ($n=13$, 40.6%)
Depression ($n=10$, 31.3%)
Autism spectrum disorder (ASD) ($n=5$, 15.6%)
Personality disorders ($n=6$, 18.8%)
Suicidal ideation ($n=5$, 15.6%)
Pre-existing FTB ($n=2$, 6.3%)
Pre-diagnosed mental retardation and comorbid conduct disorder ($n=3$, 9.4%)
Post-traumatic stress disorder (PTSD) ($n=2$, 6.3%)
Other psychological abnormalities
Social behavior abnormalities ($n=26$, 81.3%) such as difficulty fitting into social groups and problems making friends.
Bullying experiences ($n=15$, 46.9%)
Sleeping problems ($n=8$, 25.0%)
Coexisting somatic diseases
Pre- or perinatal complications ($n=10$, 31.3%)
Past invasive surgery ($n=9$, 28.1%)
Allergies, headache, developmental delay, and physical disability requiring use of wheelchair or rolling walker ($n=3$, 3.9%, each)

Global clinical impression

Disregarding social media induced FTB, 13 patients (40.6%) were considered severely mentally ill, four (12.5%) severely physically ill, eight (25.0%) as both, and seven (21.7%, all females) as neither as shown in the figure.

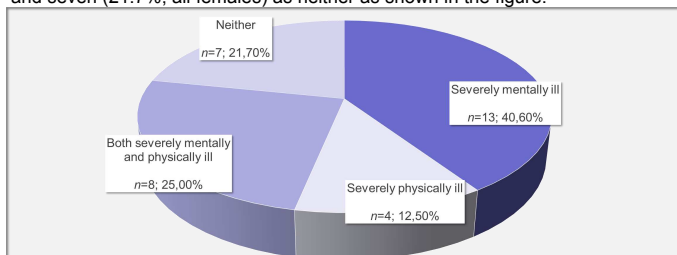


Fig.: Global clinical impression of patients with MSMI-FTB

Patients with MSMI-FTB with and without TS

A comparison of comorbidities in patients with comorbid TS ($n=15$), in those patients without ($n=17$) can be found in table 1.

Table 1: Comorbidities of patients with MSMI-FTB with comorbid TS ($n=15$) compared to those without comorbid TS ($n=17$)				
	FTB+TS ($n=15$)	FTB ($n=17$)	$p^{a,b}$	p_c^b
Sex (male/female)	9/6	7/10	0.480	1
Comorbidities				
ADHD (n , %)	0 (0%)	3 (17.7%)	0.229	1
OCB (n , %)	12 (80.0%)	3 (17.7%)	0.001	0.025
Anxiety (n , %)	6 (40.0%)	7 (41.2%)	1	1
Depression (n , %)	5 (33.3%)	5 (29.4%)	1	1
ASD (n , %)	4 (26.7%)	1 (5.9%)	0.161	NA
Further psychiatric disorders/symptoms				
Abnormalities in social behavior	13 (86.7%)	13 (76.5%)	0.659	1
Personality disorder	4 (26.7%)	2 (11.8%)	0.383	1
Sleeping problems	5 (33.3%)	3 (17.7%)	0.424	1
Suicidal ideation	3 (20.0%)	2 (11.8%)	0.645	1
Exposure to bullying	7 (46.7%)	8 (47.1%)	1	1

Significant results are shown in bold; a uncorrected p-values; b t-tests were performed for interval-scaled dependent variables and Fisher's exact tests for dichotomous dependent variables; significant results are shown in bold; c corrected p-values according to Bonferroni

Patients with MSMI-FTB and with primary tic disorder

A comparison of comorbidities of patients with MSMI-FTB to a large sample of patients with primary tic disorders patients can be found in table 2.

Table 2 Comparison between patients with social media-induced functional Tourette-like behaviour (FTB) ($n=32$) and a large sample of patients with chronic tic disorders (CTD) ($n=1032$)				
	FTB ($n=32$)	CTD ($n=1032$)	$p^{a,c}$	$p_c^{b,c}$
Age at evaluation (year, mean+/-SD)	20.1+/-11.0	20.9+/-12.9	0.686	1
Age at onset (year, mean+/-SD)	19.2+/-11.01	7.0+/-3.2	<0.001	<0.001
Sex ratio (male/female)	1:1	3.4:1	0.001	0.01
Comorbidities				
ADHD (n , %)	3 (9.0%)	463 (44.9%)	<0.001	0.003
OCB/CD (n , %)	15 (46.9%)	103 (10%)	<0.001	<0.001
Anxiety (n , %)	13 (40.6%)	323 (31.4%)	0.334	1
Depression (n , %)	10 (31.3%)	236 (22.9%)	0.287	1

a uncorrected p-values; b corrected p-values according to Bonferroni; c t-tests were performed for interval-scaled dependent variables and Fisher's exact tests for dichotomous dependent variables

CONCLUSIONS

- Additional psychiatric symptoms and abnormalities were found in 94% of patients
- Factors like further psychiatric symptoms, somatic diseases and experience of bullying seem to be predisposing factors for MSMI-FTB
- When diagnosing MSMI-FTB – with or without "comorbid" TS – based on our data it is important to explore all patients individual and should be addressed in psychotherapy.
- Significantly higher numbers of OCB in patients with MSMI-FTB plus comorbid TS and significantly higher numbers of ADHD and OCB/CD in comparison to a sample of patients with TS only