Short Communication

Psychosocial dysfunction associated with skin picking disorder and trichotillomania

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ABSTRACT

Skin picking disorder (SPD) and trichotillomania (TTM) are common and oftentimes disabling disorders. 125 Participants with SPD and 152 with TTM undertook clinical and neurocognitive evaluation, and were grouped according to mild, moderate, or severe levels of psychosocial dysfunction. Relationships between functional impairment and other variables were explored using linear regression and categorical analyses. Greater functional impairment was associated with worse disease severity in both groups, and by later symptom onset and lower quality of life in TTM subjects. These results indicate that levels of self-reported psychosocial dysfunction have a strong association with specific clinical aspects of SPD and TTM.

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1. Introduction

Skin picking disorder (SPD) and trichotillomania (TTM) are often debilitating conditions (Christenson et al., 1991; Woods et al., 2006; Grant et al., 2012). Not everyone with SPD or TTM, however, reports significant psychosocial impairment, and variables associated with impairment have yet to be clearly delineated. Understanding why certain individuals with SPD and TTM are more psychosocially impaired than others may be important in order to identify potentially clinically useful subtypes and optimize treatment.

Our hypothesis is that SPD and TTM reflect a complex clinical and cognitive interaction which exhibits itself in various levels of psychosocial dysfunction, and that the level of dysfunction may inform us about the heterogeneity within these disorders. We sought to investigate the clinical and cognitive profiles of adults with various levels of dysfunction. Based on the extant literature (Tung et al., 2014; Chamberlain et al., 2006; Odlaug et al., 2010), we hypothesized that individuals with greater psychosocial dysfunction would exhibit more severe SPD and

TTM and, on a cognitive level, would display greater impairment of response inhibition.

2. Methods

2.1. Subjects

Data from 125 adults with SPD and 152 with TTM taking part in various research studies at two university centers were included in this study. Inclusion criteria included males and females aged 18–65 years with a primary diagnosis of either SPD or TTM. Exclusion criteria included current psychotic disorders, bipolar disorder, or past six-month history of substance use disorders, and an inability to understand study procedures and provide written informed consent.

2.2. Assessments

Current and lifetime psychiatric comorbidity was assessed using the Structured Clinical Interview for DSM-IV (SCID) disorders (First et al., 1995) and SCID-compatible modules for impulse control disorders (Grant, 2008). Adults with SPD completed the Yale–Brown Obsessive–Compulsive Scale Modified for Neurotic Excoriation (NE-YBOCS), a clinician-administered scale examining

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urges to pick and picking behavior for the past week (Arnold et al., 1999). Participants with TTM completed the *Massachusetts General Hospital Hairpulling Scale (MGH-HPS)* (Keuthen et al., 1995), a self-report assessment of TTM severity for the past week.

In addition, all subjects completed the following: *Sheehan Disability Scale (SDS)* (Sheehan, 1983), *Clinical Global Impression-Severity of Illness (CGI-S)* (Guy, 1976), *Quality of Life Inventory (QoLI)* (Frisch et al., 1993), 17-item *Hamilton Depression Rating Scale* (Hamilton, 1960), and the *Hamilton Anxiety Rating Scale* (Hamilton, 1959).

2.3. Cognitive testing

Cognitive assessments consisted of two previously validated tests taken from CANTABeclipse software. Previous research has found that individuals with SPD and TTM often exhibit significant deficits of motor inhibition and cognitive flexibility compared to healthy controls (Chamberlain et al., 2006; Odlaug et al., 2010). All

testing was conducted in the same controlled environment, and the order of the tasks was fixed.

2.3.1. Stop-signal task (SST)

The Stop-signal task is a well-validated task quantifying the ability to suppress impulsive responses (Logan et al., 1984).

2.3.2. Intra-dimensional/Extra-dimensional Set Shift task (IDED) (Owen et al., 1991)

The IDED task includes aspects of rule learning and behavioral flexibility (Lezak et al., 2004).

2.4. Data analysis

We used both a dimensional as well as a categorical approach and examined TTM and SPD groups separately. We used linear regression to examine the clinical and cognitive correlations with the SDS total score (all variables listed in Table 1, except duration

Table 1
Characteristics of individuals with trichotillomania (n=152) or skin picking (n=125) grouped by level of psychosocial dysfunction.

Trichotillomania participants	Mild or no dysfunction N=85	Moderate dysfunction N=55	Severe dysfunction N=12	Test statistic	p	Degrees of freedom
Demographics						
Age	33.3 (11.1)	30.6 (10.4)	34.0 (12.3)	1.143	0.321	151
Female, n (%)	75 (88.2)	50 (90.9)	11 (91.7)	0.519#	0.972	4
Relationship status, n (%) Married	34 (40.0)	14 (25.5)	6 (50.0)	6.580#	0.583	8
Education, n (%) High school or less	17 (20.0)	13 (23.6)	5 (41.7)			
At least some college	68 (80.0)	42 (76.4)	7 (58.3)	10.727#	0.218	8
Unemployed, n (%)	2 (2.4)	1 (1.8)	0 (0)	15.068#	0.238	12
Clinical and cognitive associations						
Age of trichotillomania onset	11.5 (3.9)	14.0 (7.5)	17.8 (10.8)	6.993	**0.001**	151
Duration of illness (trichotillomania)	21.8 (11.4)	16.6 (9.8)	16.2 (13.1)	4.343	**0.015**	151
MGH-HPS total score	15.7 (4.5)	19.3 (3.1)	21.9 (2.4)	21.906	**< 0.001**	151
CGI-S	4.3 (0.7)	4.7 (0.8)	5.1 (0.8)	10.109	**< 0.001**	151
HAM-D	3.9 (3.1)	4.3 (3.6)	7.8 (6.5)	5.782	**0.004**	151
HAM-A	3.9 (3.1)	4.3 (3.4)	7.0 (4.7)	4.585	**0.012**	151
QOLI t-score	29.0 (23.7)	25.9 (22.7)	17.8 (38.5)	1.132	0.334	149
Any current comorbid psychiatric disorder, n (%)	34 (40.0)	28 (50.9)	5 (41.7)	1.643#	0.440	2
IDED: Total errors, adjusted	21.7 (26.6)	24.3 (20.2)	31.3 (23.8)	0.466	0.629	87
SST: SSRT	178.8 (52.8)	188.9 (62.5)	177.1 (42.2)	0.348	0.702	85

Skin picking participants	Mild or no dysfunction N=55	Moderate dysfunction N=59	Severe dysfunction N=11	Test statistic	p	Degrees of freedom
Demographics						
Age	35.9 (13.1)	33.0 (11.2)	31.3 (7.4)	1.254	0.289	124
Female, n (%)	49 (89.1)	50 (90.1)	10 (90.1)	1.451#	0.835	2
Relationship status, n (%) Married	21 (38.2)	27 (45.8)	2 (18.2)	8.449#	0.207	6
Education, n (%) High school or less	3 (5.5)	2 (3.4)	1 (9.1)			
At least some college	52 (94.5)	57 (96.6)	10 (90.9)	5.795#	0.832	10
Unemployed, n (%)	6 (10.9)	1 (1.7)	0 (0)	15.366#	0.222	12
Clinical and cognitive associations						
Age of skin picking onset	13.4 (11.1)	13.2 (7.4)	9.5 (4.3)	0.907	0.407	124
Duration of illness (skin picking disorder)	22.5 (12.9)	19.8 (12.6)	21.8 (10.1)	0.683	0.507	124
NE-YBOCS total score	16.6 (4.4)	19.4 (4.6)	24.9 (4.7)	17.225	**< 0.001**	124
CGI-S	4.0 (0.6)	4.4 (0.7)	5.0 (0.9)	13.302	**< 0.001**	124
HAM-D	4.7 (3.9)	4.3 (4.0)	5.1 (3.4)	0.230	0.795	124
HAM-A	4.8 (4.1)	4.0 (3.3)	4.9 (3.1)	0.845	0.432	124
QOLI t-score	42.8 (10.9)	44.9 (10.6)	34.5 (18.1)	3.820	**0.025**	123
Any current comorbid psychiatric disorder, n (%)	26 (47.3)	30 (50.8)	9 (81.8)	4.442#	0.108	2
IDED: Total errors, adjusted	21.7 (17.4)	20.7 (19.4)	18.8 (16.9)	0.099	0.906	89
SST: SSRT	196.6 (66.3)	207.6 (105.4)	184.2 (53.8)	0.327	0.722	89

All values are mean (SD) unless otherwise indicated. Test statistic is ANOVA unless indicated # (chi-square).
CGI-S=Clinical Global Impression – Severity of Illness; HAM-A=Hamilton Anxiety Rating Scale; HAM-D=Hamilton Depression Rating Scale; QOLI=Quality of Life Inventory; IDED= Intra-dimensional/Extra-dimensional Set Shift task; SST=Stop Signal Task; SSRT=Stop Signal Reaction Time.