ANNALS OF CLINICAL PSYCHIATRY 2022;34(1):15-20 doi: 10.12788/acp.0049

RESEARCH ARTICLE

Skin picking disorder: Does a person's sex matter?

Jon E. Grant, JD, MD, MPH
Department of Psychiatry and Behavioral Neuroscience
University of Chicago
Chicago, Illinois, USA

Samuel R. Chamberlain, MD, PhD
Department of Psychiatry
Faculty of Medicine
University of Southampton
Southampton, UK
Southern Health NHS Foundation Trust
Southampton, UK

BACKGROUND: Skin picking disorder (SPD) is characterized by recurrent picking with scarring or tissue damage. Although research suggests that less than one-half of people with SPD are male, there is little clinical information about men with SPD.

METHODS: We recruited 95 non–treatment-seeking adults as part of a cross-sectional study of SPD. Men (n = 17) and women (n = 78) with SPD were compared on clinical and cognitive measures. Sex differences in the demographic and clinical characteristics, skin picking sites, and presence of comorbidities were examined using analysis of variance for continuous variables and likelihood ratio Chi-square tests for categorical variables.

RESULTS: Men were significantly more likely than women to report a first-degree relative with skin picking or hair pulling disorders ($P = .0174$). Men were less likely to pick from their scalps and backs and picked from fewer sites. Men and women did not significantly differ on skin picking severity, disability, impulsivity, or quality of life.

CONCLUSIONS: These data indicate that SPD is similarly impairing for men and women, but men may have higher familial loading and a somewhat different distribution and frequency of picking sites. Sex differences in SPD merit more detailed consideration in larger samples, including addressing potentially higher genetic/familial loading in males.

CORRESPONDENCE
Jon E. Grant, JD, MD, MPH
Department of Psychiatry and Behavioral Neuroscience
University of Chicago, Pritzker School of Medicine
5841 S. Maryland Ave, MC-3077
Chicago, IL 60637 USA

EMAIL
jongrant@uchicago.edu

INTRODUCTION

Skin picking disorder (SPD) is characterized by recurrent skin picking resulting in tissue damage. In addition to the repetitive picking and associated skin damage, this disorder often leads to clinically significant impairment or distress.[1] Skin picking disorder is also often accompanied by increased anxiety, depression, and other psychosocial dysfunction.[1,2]

A recent large community prevalence study (N = 10,169 adults) representative of the general United States population found that 2.1% of respondents identified as having current SPD, just slightly less than one-half (44.6%) of whom were male[3] (but a recent large Brazilian epidemiologic survey of 7,639 people found that 3.4% of respondents endorsed SPD, of whom 82.2% were female).[4] Data regarding clinical presentations of SPD, neuroimaging, and treatment studies, however, have largely been conducted in females with SPD,[5-14] and so these new prevalence data (ie, that approximately one-half of the people reporting SPD are male) raise questions regarding possible sex differences in SPD. Toward that end, some preliminary data based on 760 adults with SPD recruited online suggest there are no clinical sex differences in SPD,[15] whereas other research in 245 university students suggests men with SPD may report more pleasure from the behavior and may pick at areas that are less noticeable to others (eg, legs compared with face).[16] In a different study of university students (N = 1,916), men with SPD perceived themselves as significantly less attractive to others compared with women with SPD, and reported fewer depressive symptoms than women with SPD.[17] In 1 of the few neuroimaging studies to examine both men and women with SPD (21 women and 14 men), the researchers failed to identify any gender differences with regard to grey matter volumes in regions of interest in SPD (ie, basal ganglia, orbitofrontal cortex, insula), but found that women with SPD reported more severe picking and more focused picking.[18] If we examine sex differences in trichotillomania, arguably the disorder with the greatest phenomenological similarity to SPD, we find that men more commonly have later age of onset of behavior and less functional impairment due to their hair pulling than women.[19-21]

The National Institute of Mental Health in the United States has stressed that the role of sex differences is important for an accurate interpretation of research findings, as sex may reflect different disease processes between women and men, and that these differences may facilitate the development of more precision interventions in both sexes. Thus, 1 approach to refining our treatment of SPD might be to better understand sex differences and their clinical associations. Here, our aim was to identify clinical and demographic measures associated with sex in a non–treatment-seeking sample of adults with SPD. Given the extant literature, we hypothesized that men with SPD would have a later age of onset of the disorder, fewer comorbidities, and less functional impairment than women with SPD.

METHODS

Participants

Non–treatment-seeking adults, ages 18 to 65 years with a primary and current diagnosis of SPD as defined in DSM-5 (N = 95; 17.9% male), were enrolled in a study regarding the clinical characteristics of SPD. Participants were recruited using flyers, online advertisements, and referrals. The only inclusion criterion was SPD as the person's primary disorder. The only exclusion criterion was an inability to understand and consent to the study.

Data were collected at the University of Chicago, Illinois, from March 2017 to September 2018. The study and consent processes were approved by the University of Chicago Institutional Review Board. After participants were given a comprehensive explanation of study procedures and an opportunity to ask any questions, they provided written informed consent. This research was conducted in accordance with the principles of the Declaration of Helsinki. Participants were compensated $75 US for time and travel and were permitted to take rest breaks during the procedures if needed.

Assessments

Participants were diagnosed using DSM-5 criteria. A semistructured interview was used to acquire demographic information and data regarding the clinical characteristics of SPD. The interview included questions regarding age of onset of picking, intensity of urges, environmental or emotional triggers, and frequency and duration of the skin picking.

We used the Mini International Neuropsychiatric Interview (MINI) 7.0[22] to screen for co-occurring psychiatric disorders. Family medical and psychiatric history

TABLE 1
Comparison of men and women with SPD based on demographic and clinical measures

	Men (N = 17) Mean (SD) or n [%]	Women (N = 78) Mean (SD) or n [%]	F	*P*
Age, y	32.6 (13.0)	32.5 (11.7)	.001	.97
Racial-ethnic group, non-White[a]	3 [17.6]	21 [26.9]	Fish	.2281
Education level[b]	5.9 (1.3)	5.9 (1.3)	<.001	.986
Age at onset of SPD, y	15.6 (8.8)	13.2 (7.9)	1.2469	.267
MIDAS focused	16.1 (4.9)	18.1 (5.0)	1.897	.172
MIDAS automatic	19.6 (4.7)	18.2 (4.3)	1.2926	.2586
Clinical Global Impression-Severity	4.0 (0.5)	4.3 (0.8)	2.428	.1226
Sheehan Disability Scale	6.4 (5.8)	8.5 (7.4)	1.202	.276
BIS attentional	16.3 (4.2)	16.2 (4.0)	<.001	.986
BIS motor	21.6 (4.3)	21.2 (3.8)	.1396	.7096
BIS nonplanning	24.7 (5.2)	23.1 (5.0)	1.2579	.2651
QOLI T-score	41.8 (14.5)	44.8 (12.8)	.7011	.4046
Participants with at least 1 first-degree relative with SPD or trichotillomania, n [%]	3 [17.6]	1 [1.3]	Fish	.0174
Participants with at least 1 first-degree relative with OCD, n [%]	1 [5.9]	1 [1.3]	Fish	.3274
Participants with at least 1 first-degree relative with a substance use disorder, n [%]	2 [11.8]	14 [17.9]	Fish	.3798

[a]For simplicity, data are presented in binary form, but the test examined breakdown across all racial-ethnic subgroups.
[b]The coding for education: 1 = less than high school; 2 = some high school; 3 = high school graduate; 4 = some college; 5 = junior college graduate; 6 = college graduate; and 7 = post graduate education.

BIS: Barratt Impulsivity Scale; Fish: Fisher exact test; MIDAS: Milwaukee Inventory for Dimensions of Skin Picking; OCD: obsessive-compulsive disorder; QOLI: Quality of Life Inventory; SPD: skin picking disorder.

were also assessed in first-degree relatives of the participants (although family members were not interviewed).

The following clinical measures were used to assess symptom severity, anxiety, stress, and impulsivity.

Clinical Global Impression—Severity (CGI-S) scale.[23] The CGI-Severity scale is a reliable and valid 7-item scale used in this study to assess clinical severity of SPD symptoms. The CGI-Severity scale was scored where 1 indicates "not ill at all" and 7 indicates "among the most extremely ill."

Milwaukee Inventory for the Dimensions of Skin Picking (MIDAS).[24] This 12-item scale assesses automatic and focused picking styles.

Sheehan Disability Scale (SDS).[25] The SDS is a reliable, valid, 3-item, self-report scale that was used to assess how skin picking affected functioning in 3 areas of life: work/school, social/leisure activities, and home/family life. Scores on the SDS range from 0 to 30, with each question ranging from 0 (no disruption) to 10 (extreme disruption).

Quality of Life Inventory (QOLI).[26] The QOLI is a self-report scale consisting of 16 domains of life: health, self-esteem, goals and values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home, neighborhood, and community. Individuals are asked to rate the importance of each domain along with how satisfied they are with that domain.

Barratt Impulsiveness Scale 11 (BIS-11).[27] The BIS-11 is a 30-question self-report questionnaire examining general impulsiveness as well as 3 second-order domains: motor, nonplanning, and attentional impulsiveness.

Data analysis

Gender differences in demographic and clinical characteristics, skin picking sites, and presence of comorbidities were examined using analysis of variance (ANOVA) for continuous variables and likelihood ratio Chi-square tests for categorical variables (or Fisher exact tests for small cell counts). Note that, statistically, ANOVAs are

TABLE 2
Comparison of men and women with SPD based on skin picking sites[a]

	Men (N = 17)	Women (N = 78)	LR	*P*
Picked only at a single site, n (%)	8 (47.1)	13 (16.7)	6.569	.0104
Picked at 1 to 2 sites, n (%)	13 (76.5)	24 (30.8)	12.177	<.001
Picked at 3 or more sites, n (%)	3 (17.6)	49 (62.8)	Fish	<.001
Scalp, n (%)	2 (11.8)	32 (41.0)	Fish	.0260
Face, n (%)	8 (47.1)	54 (69.2)	2.905	.0883
Back, n (%)	1 (5.9)	29 (37.2)	Fish	.0104
Arms, n (%)	6 (35.3)	36 (46.2)	.678	.4103
Legs, n (%)	3 (17.6)	28 (35.9)	Fish	.1677
Breast area, n (%)	0 (0.0)	15 (19.2)	Fish	.0648
Pubic area, n (%)	0 (0.0)	6 (7.7)	Fish	.5871
Armpits, n (%)	0 (0.0)	7 (9.0)	Fish	.1994
Other, n (%)[b]	8 (47.1)	37 (47.4)	.001	.9775

[a]In some cases, proportions may not add up to 100% owing to blank responses to some questions.
[b]Examination of descriptions for "other" indicated this category commonly comprised fingers, including both finger skin itself and/or cuticles.
Fish: Fisher exact test; LR, likelihood ratio Chi-square test.

equivalent to *t* tests when there are 2 groups. Because this was an exploratory study, and in view of the sample size, statistical significance was defined as $P < .05$ uncorrected. All analyses were conducted using JMP Pro software.

RESULTS

Participant characteristics

Ninety-five adults (mean age, 32.5 ± 11.9 years; 17.9% male) with primary DSM-5 SPD were included. The demographic and clinical variables are presented in **TABLE 1**. Participants had the following self-identified racial breakdown with no significant differences in demographic indicators between groups: 74.7% White, 5.3% Black/African American, 4.2% Asian, 5.2% Biracial, and 6.3% Other. Men and women with SPD did not significantly differ on demographic measures (all $P > .10$). Men and women with SPD also did not significantly differ on skin picking severity (moderate scores on the CGI), functional disability (mild-moderate disability), impulsivity (low levels) or quality of life (low quality of life). Group differences in demographic measures, severity, impulsivity, and quality of life remained nonsignificant when posthoc nonparametric Mann-Whitney *U* tests were also conducted to rule out potential influence of nonnormally distributed variable(s). Men with SPD were significantly more likely to report a first-degree relative with skin picking or hair pulling ($P = .0174$).

Participants were asked about sites on their bodies where they picked. It could be a single site or multiple sites. These data are presented in **TABLE 2**. Men were significantly less likely to pick from their scalps ($P = .0260$) or backs ($P = .0104$). The 2 groups did not differ in terms of other sites they picked. Overall, women picked from significantly more sites than men did ($P < .001$).

Data from the MINI regarding comorbid conditions are presented in **TABLE 3**. Rates of current comorbid psychiatric conditions did not differ significantly between men and women with SPD ($P = .7367$).

DISCUSSION

This study examined potential sex differences in the clinical presentation of SPD in adults. Men and women with SPD had similar presentations in terms of severity of symptoms and impairment and similar levels of impulsiveness. They also did not differ significantly in terms of occurrence of comorbidities, nor in terms of whether the picking tended to be more "automatic" or "focused." These findings indicate that SPD needs to be

TABLE 3
Comparison of men and women with SPD based on current comorbidities[a]

	Men (N = 17)	Women (N = 78)	*P*
Had only 1 comorbid disorder, n (%)	1 (11.1)	15 (20.6)	.6818
Had multiple comorbid disorders, n (%)	4 (23.5)	27 (37.0)	.7367
OCD, n (%)	2 (11.8)	5 (6.4)	.6048
BDD, n (%)	0 (0.0)	4 (5.2)	>.999
GAD, n (%)	5 (29.4)	27 (35.1)	.5736
Social phobia, n (%)	0 (0.0)	4 (5.3)	>.999
Specific phobia, n (%)	0 (0.0)	4 (5.2)	>.999
Panic disorder, n (%)	2 (11.8)	4 (5.2)	.3012
Agoraphobia, n (%)	0 (0.0)	0 (0.0)	>.999
Depression, n (%)	4 (40.0)	32 (41.0)	>.999
Bipolar disorder, n (%)	1 (5.9)	1 (1.4)	.3404
Tourette's disorder, n (%)	0 (0.0)	2 (2.6)	>.999
ADHD, n (%)	2 (11.7)	5 (6.7)	.2468
PTSD, n (%)	0 (0.0)	5 (6.6)	>.999
Anorexia nervosa, n (%)	0 (0.0)	3 (4.0)	.5803
Bulimia nervosa, n (%)	0 (0.0)	1 (1.3)	>.999
Binge-eating disorder, n (%)	0 (0.0)	3 (4.0)	>.999
Alcohol use disorder, n (%)	0 (0.0)	1 (1.3)	>.999
Substance use disorder, n (%)	0 (0.0)	2 (2.6)	>.999

[a]Tests are all Fisher exact tests.

ADHD: attention-deficit/hyperactivity disorder; BDD: body dysmorphic disorder; GAD: generalized anxiety disorder; OCD: obsessive-compulsive disorder; PTSD: posttraumatic stress disorder.

taken seriously irrespective of sex owing to high rates of impairment and comorbid conditions.

Having found men and women with SPD were similar on most measures, we did find evidence for some clinical differences in specific domains. Compared with women with SPD, men typically picked from fewer body sites. Additionally, men with SPD were less likely to pick at skin from their backs or scalp areas. The clinical significance of these results or the reason for them is unclear, since men and women had similar overall levels of symptom severity. This may suggest that, although picking sites differ somewhat, the picking is similarly impairing overall, as also reflected in the quality of life and disability measures being similar across genders.

In terms of family history of other conditions, men with SPD had higher rates of skin picking and/or trichotillomania in their first-degree relatives, but not notably higher rates of the other conditions examined (obsessive-compulsive disorder and substance use disorders). There is virtually a complete absence of research into genes conferring vulnerability to SPD.[28] A previous study examined heritability in female twin pairs and estimated the heritability of SPD to be approximately 40%.[29] Based on our finding of higher rates of SPD and trichotillomania in the first-degree relatives of men with SPD, we predict that heritability may be higher in men.

Limitations

Several limitations should be noted in terms of this study. First, the sample was small, and so relatively subtle sex differences may not have been detected. Second, and in view of the sample size, findings should be considered tentative and in need of replication in larger studies. Third, we recruited non–treatment-seeking participants, and so it is not yet known whether these findings would generalize to clinical settings. Nonetheless, we feel it is important to draw attention to potential similarity and differences in the presentation of SPD as a function of sex.

CONCLUSIONS

Both men and women with SPD showed similar functional impairment, rates of mainstream mental disorders, and impulsiveness. However, differences in picking sites as well as in family history of picking and trichotillomania were identified between sexes, highlighting the need for more research to be conducted, including in the areas of heritability and genetics. ■

DISCLOSURES: This study was funded by internal funds. Dr. Grant has received research grants from the TLC Foundation for Body-Focused Repetitive Behaviors, Avanir Pharmaceuticals, Biohaven Pharmaceuticals, and Otsuka Pharmaceuticals. He receives yearly compensation for acting as editor-in-chief of the *Journal of Gambling Studies* and has received royalties from American Psychiatric Publishing, Inc., McGraw Hill, Norton Press, and Oxford University Press. Dr. Chamberlain consults for Promentis Pharmaceuticals and receives a stipend from Elsevier for editorial work. Dr. Chamberlain's role in this study was funded by a Wellcome Trust Clinical Fellowship (110049/Z/15/Z and 110049/Z/15/A).

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