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THE ROLE OF MORAL DISGUST AND DISGUST REGULATION DEFICITS IN SKIN-PICKING DISORDER

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SUMMARY

Background: *Relative to other body-focused repetitive behaviors, skin-picking has received little investigation. In particular, its association with disgust has hardly been studied. This is surprising because one etiological model of skin-picking disorder (SPD) suggests that the excessive picking is a form of disgust-motivated grooming that aims at the removal of pathogens from the skin.*

Subjects and methods: *This questionnaire study explored whether SPD patients (n=46) and healthy controls (n=36) differ in different facets of trait disgust (tendency to experience pathogen disgust, moral disgust, self-disgust, and disgust regulation ability). Moreover, a multiple regression analysis was calculated in order to investigate whether skin-picking symptoms can be predicted based on these components of trait disgust.*

Results: *Patients received higher scores on all disgust measures than controls. The degree of patients' skin picking (symptom severity, resulting impairment) could be predicted based on moral disgust (disgust experienced when confronted with moral transgressions) and difficulties in disgust regulation.*

Conclusion: *This study provides evidence for the role of specific disgust components in SPD.*

Key words: *skin-picking disorder - moral disgust - disgust sensitivity*

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INTRODUCTION

Skin-picking disorder (SPD) is a common mental disorder (APA 2013, Grant et al. 2012). The predominant symptom involves the repeated scratching and picking of one's own skin. Regions most commonly picked at are the arms, hands, and the face (Odlaug et al. 2010). Skin picking is mainly executed with the fingernails or more rarely with tools such as tweezers and needles. The excessive picking can have serious consequences such as severe tissue damage and associated complications (e.g., infections). Some patients are covered with sores and scars, often leading to disfigurement, which causes clinically significant distress and impairment in important areas of functioning (APA 2013).

SPD was added to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) in 2013. It is classified as a condition related to obsessive-compulsive disorders (OCD) due to the individual`s compulsive urge to perform repetitive skin-picking. However, this classification has been questioned because other OCD-related features (e.g., obsessions) are not present. Other categorization labels have been introduced such as impulse control disorder, behavioral addiction and pathological grooming (e.g., Grant et al. 2012, 2014, Maraz et al. 2017).

Especially the 'pathological grooming' model' has received little attention in SPD research so far. Grooming is a behavior that is present in many species (e.g., in the form of picking, scratching, licking). The most common purpose is to clean the own body as a health-protecting mechanism (Feusner et al. 2009). Typically, the presence of dirt or parasites elicits grooming and aims at their removal. In humans, one factor that motivates grooming is the basic emotion disgust, which is considered part of a disease avoidance mechanism (e.g., Davey 2011). So-called core disgust or pathogen disgust, a central component of disgust proneness functions to protect humans from contamination and disease (Davey 2011). Pathogen disgust is part of our behavioral immune system and thus motivates the avoidance of infectious microorganisms (Schaller et al. 2007). When the disgust warning system is activated typical defense mechanisms are elicited, such as distancing oneself from the source of infection and grooming/cleaning (Curtis et al. 2011). Thus, it is possible that SPD might be understood as a form of disgust-related pathological grooming.

In line with this assumption is a functional magnetic resonance imaging (fMRI) study with visual symptom provocation (Schienle et al. 2018a). Patients with SPD and healthy controls viewed and rated images depicting skin irregularities and smooth skin. Relative to controls, SPD patients reported more disgust and urge to pick when looking at skin irregularities. This was accompanied by greater activation in the amygdala and insula, and stronger insula-putamen coupling. Disgust feelings elicited by viewing skin irregularities were positively correlated with activation of the insula, the amygdala, and the putamen, in the clinical group. On personality questionnaires, SPD patients reported difficulties in regulating their disgust feelings.

In another study (Schienle et al. 2018b) the Milwaukee Inventory for the Dimensions of Adult Skin-picking (MIDAS, Walther et al. 2009) was ad-

ministered to assess focused (ritualized) skin picking and automatic (unconscious) skin picking in a large sample of individuals with sub(clinical) symptoms. Focused skin-picking could be predicted based on self-disgust (the tendency to feel disgusted by one's own behavior) and disgust proneness (the tendency to experience disgust towards potential transmitters of disease). A prediction of automatic skin-picking was not possible because this MIDAS subscale had no satisfactory reliability.

The current questionnaire study therefore used a different assessment tool for skin-picking behavior, the Skin-Picking Scale Revised (SPS_R; Gallinat et al. 2016), which is characterized by excellent reliability. The SPS_R assesses skin-picking severity and degree of impairment due to the picking. SPD patients and healthy controls answered the SPS_R as well as different disgust questionnaires focusing on pathogen disgust (elicited by dirt and disease), moral disgust (elicited by moral transgressions), self-disgust and disgust regulation capability.

The aim of the current study was to compare indicators of trait disgust between patients with SPD and healthy controls. In addition, a multiple regression approach was chosen to predict the degree of skin-picking (severity, impairment) based on the selected disgust variables separately in the two samples.

SUBJECTS AND METHODS

Participants

Forty-six SPD patients (24 women, 22 men) and 36 control participants (19 women, 17 men) were studied. The SPD diagnosis according to DSM-5 was obtained by a board-certified clinical psychologist. The participants were on average 36.8 years old (SD=15.7); mean duration of education was 10.1 years (SD=3.9). The groups did not differ in both variables (ps>0.10).

In the clinical sample, diagnosed comorbidity included major depression (mild to moderate symptoms) in two patients, who received antidepressant medication. Any life-time diagnosis of a mental disorder led to exclusion from the control group.

Participants were recruited by means of the outpatient clinic at the Department of Clinical Psychology (University of Graz, Austria) and by media advertisements. After a complete description of the study, written informed consent was obtained. The local ethics committee approved this study, which was carried out in accordance with the ethical principles established in the Declaration of Helsinki.

Questionnaires

The Skin-picking Scale Revised (SPS_R, German version, Gallinat et al. 2016) has two subscales with 4 items each: 'symptom severity' (e.g., 'How often do you feel the urge to pick or squeeze your skin?'; Cronbach's α=0.96 in the present sample) and 'impairment' (e.g., 'To which degree does the picking or squeezing of your skin burden you emotionally?'; α=0.94).

The Questionnaire for the Assessment of Disgust Proneness (QADP; Schienle et al. 2002) is a 37-item questionnaire assesses the general tendency of an individual to experience pathogen-related disgust (e.g., 'You are just about to drink a glass of milk, as you notice that it is spoiled'). The internal consistency of the scale was α=0.93.

The Scale for the Assessment of Disgust Sensitivity (SADS; Schienle et al. 2010) is a 7-item scale that assesses difficulties in regulating one's own feelings of disgust (e.g., 'Experiencing disgust is stressful for me'). The internal consistency of the scale was α=0.91.

The Questionnaire for the Assessment of Self-Disgust (QASD; Schienle et al. 2014) assesses disgust-related self-concept by means of 14 items (e.g., 'I find myself repulsive'). The internal consistency was α=0.92.

The sub scale 'Moral Disgust' (7 items, Cronbach's α=0.94) of the Three Domain Disgust Scale (Tybur et al. 2009) assesses disgust elicited by moral transgressions (e.g., Forging someone's signature on a legal document, stealing from a neighbor).

RESULTS

Independent-samples t-tests were conducted in order to compare questionnaire scores between SPD patients and controls. There were significant group differences in the scores for all disgust scales (Table 1). In addition, both groups differed in their SPS_R scores (symptom severity, impairment); Pearson correlations for the two SPS_R subscales were r=0.58 (patients) and r=0.75 (controls).

Then, a multiple regression analysis was calculated for the patient sample in which the disgust measures (disgust proneness, disgust sensitivity, moral disgust, self-disgust) were simultaneously entered as predictors, with symptom severity of skin-picking (SPS_R) serving as the criterion variable. The analysis (model R^2=0.27, F(4,44) = 3.62, p=0.013) revealed significant predictive effects of disgust sensitivity and moral disgust (see Table 2).

In a second regression analysis with the data of the patients, the same disgust measures were simultaneously entered as predictors and impairment (SPS_R) served as criterion. The analysis (model R^2=0.48, F(4,44)=9.31, p<0.001) revealed significant predictive effects of disgust sensitivity and moral disgust (see Table 2).

For the control group (with only 36 participants), the analyses models were not adequate (p>0.09).

Table 1. Comparison of skin-picking symptoms and trait disgust between patients with skin-picking disorder and controls

	Patients (n=46) M (SD)	Controls (n=36) M (SD)	t(p)
Skin-picking			
Symptom severity	9.28 (2.74)	0.67 (1.30)	18.77 (<0.001)
Impairment	6.76 (3.89)	0.22 (0.72)	11.15 (<0.001)
Trait disgust			
Disgust proneness	2.17 (0.54)	1.84 (0.75)	2.32 (0.023)
Disgust sensitivity	1.14 (0.97)	0.44 (0.52)	4.08 (<0.001)
Moral disgust	3.80 (1.66)	2.51 (1.96)	3.21 (0.002)
Self-disgust	1.30 (0.96)	0.22 (0.27)	7.29 (<0.001)

Table 2. Results of the regression analyses for patients with skin-picking disorder

Predictor	B	95% CI for B	p
Criterion: symptom severity (SPS_R)			
Self-disgust	0.08	-1.03-1.19	0.890
Disgust proneness	-0.81	-2.55-0.94	0.360
Moral disgust	0.69	0.20-1.18	*0.007*
Disgust sensitivity	1.09	0.38-2.14	*0.043*
Criterion: impairment (SPS_R)			
Self-disgust	0.30	-1.02-1.62	0.650
Disgust proneness	0.39	-1.68-2.46	0.710
Moral disgust	0.62	0.03-1.20	*0.039*
Disgust sensitivity	2.23	0.97-3.48	*0.001*

Note: SPS_R: Skin-Picking Scale Revised

DISCUSSION

This study investigated the role of four different facets of trait disgust (pathogen disgust, self-disgust, moral disgust and disgust sensitivity) in skin-picking disorder (SPD). The main findings of the current study were that SPD patients scored higher on all selected disgust measures and more importantly, the degree of their skin-picking could be predicted based on two specific traits: moral disgust and disgust sensitivity.

Typical elicitors of moral disgust are social transgressions. These are non-normative, often antisocial activities (e.g., lying, cheating, stealing) that harm others directly or hurt one's social group (Tybur et al. 2009). Whereas core (pathogen) disgust functions to protect the body from contamination and disease, moral disgust severs to protect the soul (Rozin et al. 2000). Moral disgust motivates normative behavior as well as avoidance of social norm violators. This helps to protect social order (Tybur et al. 2009). Sometimes, norm-violating individuals are not only avoided but punished. Fontenelle et al. (2015) argued that moral disgust is an extreme form of contempt that is not only elicited by antisocial behaviors but in turn can lead to such behaviors. Moral disgust is accompanied by blaming others and devaluation of their social status. Thus, moral disgust is closely connected to other moral emotions, such as guilt, anger/indignation, and shame/embarrassment (Fontenelle et al. 2015). Socio-moral violations most strongly evoke disgust and anger, whereas dirt and disease (core elicitors) primarily evoke disgust (Simpson et al. 2006).

In SPD patients, moral disgust was a positive predictor of symptom severity of skin-picking and associated impairment. Thus, disgust experienced by moral transgressions of others was positively associated with self-injury due to excessive picking. This prompts questions as to whether skin-picking might be a form of self-punishment associated with self-blame. In a previous questionnaire study, behavioral self-disgust was identified as a predictor of focused skin-picking (Schienle et al. 2018). This component refers to the devaluation of one's own behavior (e.g., 'I regret my behavior, I do things that I find disgusting'). Here, pathological skin picking involved an intentional self-harm component in the sense of self-punishment.

The second predictor of skin-picking severity in the clinical sample was disgust sensitivity. This disgust component relates to how unpleasant the experience of disgust is to the individual and how well disgust can be regulated (Schienle et al. 2010). Previous studies already demonstrated that general emotion regulation difficulties are associated with skin-picking in nonclinical as well as clinical samples (for a review see Roberts et al. 2013). Snorrason et al. (2010) suggested that individuals with SPD show chronically high levels of emotional arousal in combination with a fundamental deficit in emotion regulation. This in turn prompts the adoption of maladaptive regulation strategies such as skin-picking.

The finding of the current study is in line with this model and indicates that disgust regulation deficits are one important aspect of this maladaptive strategy. A neuroimaging study already pointed to the central role of disgust in pathological skin-picking (Schienle et al. 2018). SPD patients who viewed images depicting skin irregularities experienced increased disgust in combination with an increased urge to scratch themselves. In addition, the patients also reported difficulties in disgust regulation in their daily lives.

CONCLUSION

In conclusion, this study found strong evidence for the role of disgust in SPD. Some authors suggested that SPD may begin as a normal grooming routine in which small blemishes or skin irregularities are removed and over time turns pathological (e.g., Roberts et al. 2013). This development might also include generalization, meaning that grooming is not only chosen as a behavior in response to core disgust elicitors but also when confronted with socio-moral transgressions. This interpretation can be directly tested in a future study during which SPD patients and controls are confronted with different types of disgust elicitors (e.g., descriptions of core disgust elicitors, moral transgressions) and the degree of elicited body-focused behavior is compared between conditions and groups.

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