



No disgust recognition deficit in obsessive–compulsive disorder[☆]

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Abstract

Background: Patients with basal ganglia abnormalities misclassify facial expressions of disgust as expressions of anger when asked to identify the emotion depicted in photographs of individuals displaying different emotions. Sprenghelmeyer, Young, Pundt et al. (1997) reported a similar disgust recognition deficit in patients with obsessive-compulsive disorder (OCD)—an anxiety disorder associated with basal ganglia abnormality.

Methods: In the present experiment, we attempted to replicate Sprenghelmeyer, Young, Pundt et al.'s (1997) findings.

Results: We failed to replicate Sprenghelmeyer, Young, Pundt et al.'s finding of disgust recognition deficits in OCD patients relative to healthy control subjects. One patient with especially severe OCD did, however, exhibit impairment by misclassifying disgust expressions as anger expressions.

Discussion: These data do not confirm the presence of disgust recognition deficits in individuals with OCD. In light of the deficits exhibited by one subject with severe OCD, disgust recognition deficits may be confined to an unidentified subset of people with OCD.

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Keywords: Obsessive–compulsive disorder; Emotion recognition; Basal ganglia dysfunction

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1. Introduction

Several lines of evidence implicate abnormalities in the basal ganglia, especially the caudate nucleus, in obsessive–compulsive disorder (OCD). Positron emission tomography studies have revealed heightened activity in the caudate nucleus that normalizes following successful behavior therapy or pharmacotherapy (Baxter et al., 1992; Schwartz, Stoessel, Baxter, Martin, & Phelps, 1996). Neurological patients suffering from diseases damaging the basal ganglia often develop obsessions and compulsions (e.g. McGuire, 1995). Patients with Tourette’s syndrome, a neurological condition characterized by involuntary motor and vocal tics, exhibit a pattern of obsessive–compulsive symptoms similar to that in OCD patients (Sheppard, Bradshaw, Purcell, & Pantelis, 1999). A recent study revealed that patients with mild Parkinson’s disease performed similarly to control subjects on a standard measure of obsessive–compulsive symptoms. However, the severity and progression of the disease was associated with increased scores on these measures, specifically on subscales assessing checking, cleaning, and doubting (Alegret et al., 2001). The evidence indicates that the obsessions and compulsions exhibited by patients suffering from diseases related to basal ganglia pathology are similar to those exhibited by OCD patients. Finally, relative to healthy control subjects, patients with OCD have smaller caudate volumes (Robinson et al., 1995).

After discovering that patients with Huntington’s disease—a condition characterized by basal ganglia abnormality—exhibited an inability to recognize facial expressions of disgust (Sprengelmeyer et al., 1996; Sprengelmeyer, Young, Sprengelmeyer et al., 1997), Sprengelmeyer, Young, Pundt et al. (1997) found that patients with OCD exhibited a similar deficit. When viewing photographs of people displaying various emotions, OCD patients tended to misclassify expressions of disgust as expressions of anger. Patients with Tourette’s disorder who also had obsessions and compulsions exhibited this deficit, whereas Tourette’s patients without OCD features did not. Like healthy control subjects, patients with panic disorder or generalized anxiety disorder had no difficulty recognizing facial expressions of disgust.

That OCD patients would exhibit a selective deficit in the recognition of disgust is striking, especially because so many exhibit heightened disgust as well as fear reactions to stimuli they regard as “contaminated.” Yet phenomenology notwithstanding, this deficit, if replicated, would constitute another line of evidence pointing to basal ganglia abnormality in OCD.

In this experiment, we attempted to replicate Sprengelmeyer, Young, Pundt et al.’s (1997) disgust recognition deficit in OCD. We administered an emotion “hexagon” task, in which subjects were asked to assign an emotion label (e.g. happiness, surprise, fear, sadness, disgust, anger) to the corresponding facial expression of emotion. This task assessed whether subjects could accurately identify and label facial expressions of emotions. Subjects also completed an emotion intensity discrimination task in which they viewed pairs of faces and decided which face was expressing more emotion. Although disgust was the primary emotion of interest in this task as well, we also investigated anger discrimination. In Sprengelmeyer,

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