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The Disgust Propensity and Sensitivity Scale – Revised: Its predictive value for avoidance behavior

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ABSTRACT

Disgust propensity appears involved in psychopathology. However, current disgust propensity indices display inflated correlations with psychopathology indices due to conceptual overlap. The recently developed Disgust Propensity and Sensitivity Scale – Revised (DPSS-R) is unique in that it measures disgust propensity irrespective of specific elicitors. Although psychometric research confirmed its factor-structure, its predictive validity remains to be established. Therefore, the goal of this study is to test its predictive validity for avoidance behavior in a series of disgusting tasks. Preselected participants ($N = 60$) with varying levels of disgust propensity engaged in seventeen behavioral tasks. Supporting its predictive validity, higher DPSS-R scores were associated with completing fewer behavioral actions. Additionally, the DPSS-R had added predictive value over and above traditional trait disgust indices.

1. Introduction

Accumulating evidence suggests that disgust propensity, the tendency to experience disgust more readily, is involved in psychopathology, like spider phobia (Matchett & Davey, 1991), blood phobia (Page, 1994), and sexual dysfunctions (de Jong, van Overveld, Weijmar Schultz, Peters, & Buwalda, 2009).

However, associations between disgust propensity and psychopathology may present an artifact as current disgust indices contain conceptual overlap with indices of psychopathology. For example, the Disgust Scale (DS; Haidt, McCauley, & Rozin, 1994), Disgust Questionnaire (DQ; Rozin, Fallon, & Mandell, 1984), and Disgust Emotion Scale (DES; Walls & Kleinknecht, 1996) assess disgust propensity in relation to specific objects. Thus, artificially inflated relationships may occur with psychopathology indices as both contain similar items (e.g., small animals). This underlines the importance of a disgust propensity index that does not rely on particular disgust elicitors. Further, for cross-cultural comparisons, such a measure would be helpful as disgust–eliciting properties vary across cultures (e.g., Olatunji et al., 2009).

The Disgust Propensity and Sensitivity Scale (DPSS) is the first index to measure disgust propensity irrespective of disgust elicitors (Cavanagh & Davey, 2000). Additionally, it measures disgust sensitivity. In the context of psychopathology, it may both be important how readily people respond with disgust (disgust propensity), and how unpleasant people consider experiencing disgust (disgust sensitivity). High levels of disgust propensity may enlarge the probability that stimuli acquire a disgust-evoking status. If the (subjective) probability of unwilling physical contact with disgusting stimuli is high, this may lead to phobic fear and avoidance (e.g., de Jong & Muris, 2002). This may be especially pronounced in individuals who consider experiencing disgust highly aversive (e.g., van Overveld, de Jong, Peters, van Hout, & Bouman, 2008).

The revised DPSS-R demonstrated good psychometric qualities in terms of internal consistency and factor-structure (Olatunji, Cisler, Deacon, Connolly, & Lohr, 2007a; van Overveld, de Jong, Peters, Cavanagh, & Davey, 2006). Recently, its psychometric qualities were refined even further (Fergus & Valentiner, 2009). An important next step is to test its predictive validity. Hence, the present study investigates predictive validity of the DPSS-R for actual avoidance behavior and subjective experiences of disgust (cf. Rozin, Haidt, McCauley, Dunlop, & Ashmore, 1999). To explore the predictive value of the Disgust Propensity and Sensitivity Scale – Revised compared to traditional indices, participants also completed the Disgust Scale (DS), Disgust Emotion Scale (DES), and Disgust Questionnaire (DQ).

Disgust propensity (indexed by DS) has already been associated with performance on various disgusting behavioral avoidance tasks (BAT; Deacon & Olatunji, 2007). Further, blood phobic individuals with enhanced disgust propensity (DES) were less compliant to complete various disgusting BATs (e.g., touching a bloody gauze; Koch, O'Neill, Sawchuk, & Connolly, 2002) than non-phobic

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participants. Given that the traditional indices examine specific disgust domains, we expected that the DQ (core-disgust; Mulkens, de Jong, & Merckelbach, 1996), DES (core/AR; Olatunji, Williams, Lohr, & Sawchuk, 2005), and DS (all domains; Haidt et al., 1994) would be associated strongest with avoidance for the BATs in their respective disgust domain due to content overlap. Accordingly, we anticipated elevated levels of disgust propensity (indexed by Disgust Propensity and Sensitivity – Revised Propensity; DPSS-RP) to be associated with stronger behavioral avoidance and increases in state disgust irrespective of the disgust domain. Finally, we anticipated that disgust sensitivity (Disgust Propensity and Sensitivity – Revised Sensitivity; DPSS-RS) would also be associated with avoidance tendencies. Especially individuals who are prone to experiencing disgust and consider disgust highly unpleasant may be prone to disgust-induced behavioral avoidance.

2. Methods

2.1. Participants

Students at the schools of Health Sciences, Medicine, and Psychology from Maastricht University completed the DPSS-R and indicated their willingness to participate in a follow-up study. To ensure that scores across a broad range of the DPSS-R were included, the research population ($N = 216$) was divided into deciles and we attempted to include equal numbers of participants per decile. Sixty participants were invited to the lab. As female students are overrepresented at these schools, the research population consists mostly of female participants (52 women; 86.7%) with a mean age of 21.58 years (SD = 2.95; range: 18–39 years).

2.2. Instruments

Disgust Propensity and Sensitivity Scale – Revised (DPSS-R; van Overveld et al., 2006). The DPSS-R measures disgust propensity and sensitivity. Here, the shortened version was used (Fergus & Valentiner, 2009). Participants read twelve propositions on disgust propensity (e.g., "I experience disgust") and sensitivity (e.g., "It scares me when I feel faint") and indicated which applied best to them on a scale from 1 (='never') to 5 (='always'; range: 12–60). In accordance with commonly used guidelines for interpreting Cronbach's alpha (e.g., Bland & Altman, 1997), it is internally consistent ($\alpha = .78$ for Propensity, $\alpha = .79$ for Sensitivity; Fergus & Valentiner, 2009).

Disgust Emotion Scale (DES; Walls, 1996); The DES examines disgust propensity for thirty disgust elicitors. Participants rate how much disgust they experience upon confrontation with thirty items (e.g., vomit smell) on a scale from 0 (='No disgust at all') to 4 (='Extreme disgust'). Here, only the total score was calculated, which was internally consistent ($\alpha = .92$).

Disgust Questionnaire (DQ; Rozin et al., 1984); The DQ measures propensity for core disgust. It assesses the tendency to reject desirable and edible food items after contamination by disgusting stimuli. Participants indicate on a scale from 1–9 (1 = 'not at all', 9 = 'very much') their preference towards eating these contaminated foods. A total score can be calculated (range 24–216). Internal consistency is good ($\alpha = .80$, Mulkens et al., 1996).

Disgust Scale (DS; Haidt et al., 1994). The DS measures disgust propensity for various disgust elicitors and consists of two parts. First, participants rate their agreement with 16 propositions using a dichotomous scoring format (0 = 'false', 1 = 'true'). Second, participants indicate whether they consider 16 items disgusting on a scale from 0 (='not disgusting at all') to 2 (='extremely disgusting'). Although the 32-item version was administered, in accordance with recent suggestions (Olatunji et al., 2007b), only 25 items were used to calculate a total score and subscales: Core disgust, Animal-Reminder disgust (AR), and Contamination. These are internally consistent (all α's > 0.70; Olatunji et al., 2007b) and are favoured above the original eight-factor distribution of the full 32-items DS.

Visual Analog Scale (VAS). participants rated on 100-mm VAS's the levels of state disgust (how much disgust did you experience during this last step?).

2.3. Materials

Behavioral Approach Tests; A total of 17 BATs were devised (see Table 1). Four tests were designed for all disgust domains that are generally accepted in disgust research (Rozin, Haidt, & McCauley, 2009): core, AR, IP, and SM-disgust. Although some tests were derived from previous research (Rozin et al., 1999), most were devised by the current authors. Each test consisted of three steps that gradually increased in disgustingness. The experimenter noted the last completed step (0 = 'no step completed at all', 3 = 'all steps completed'; range = 0–51). The order in which the tests were administered were randomized and then given a fixed order. Thus, the order was similar for all participants (0, 16, 7, 13, 4, 15, 1, 6, 11, 12, 10, 14, 3, 5, 9, 2, 8).

2.4. Procedure

Upon arrival at the lab, participants completed Dutch versions of the DPSS-R, DS, DQ, and DES. These were distributed in this order for all participants. Next, informed consent was obtained. Following, participants engaged in the BATs. After each BAT-step, participants completed the VAS-scales. Finally, participants were debriefed and received ten euros.

2.5. Data reduction

For the BATs, both the number of total steps completed was calculated (range 0–51) and the mean number of steps for each dis-

Table 1
Summary of the behavioral experiments.

	Experiment
Neutral	0. Stirring water with a finger
Core disgust	1. Drinking from a dog's bowl
	2. Taking a bite from a cookie placed in a jar containing dead grasshoppers
	3. Touching a live worm with one's lips
	4. Drinking juice from a glass in which an ice cube containing a dead grasshopper has been dipped
Animal-reminder disgust	5. Touching a dead, stuffed spider crab
	6. Sticking a needle in a pig's head
	7. Touching a band aid with a red spot. Participants were told that was sterilized blood (actually iodine)
	8. Sticking a needle in a severed cow's leg)
Interpersonal disgust	9. Wiping participant's face with used and unwashed towels
	10. Combing one's hair with a clearly used hairbrush
	11. Sticking ECG-electrode of the previous participant on one's arm
	12. Stirring a finger through a glass of water that, as participants were told, contained spit of the previous participant (it actually contained nothing)
Socio-moral disgust	13. Viewing a scene from American History X (Kaye, 1998), where several neo-Nazi's rob a supermarket, while taunting and humiliating the African–American shopkeepers intensely
	14. Viewing a scene from Happiness (Solondz, 1998), where a man harasses a woman via an obscene phone call with very explicit request and questions. Meanwhile, the man masturbates and ejaculates
	15. Eating a slice of horse meat
	16. Sticking a needle through a baby doll's eye