The Multi-Dimensional Blood/Injury Phobia Inventory: Its psychometric properties and relationship with disgust propensity and disgust sensitivity

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ABSTRACT

The Multi-Dimensional Blood Phobia Inventory (MBPI; Wenzel & Holt, 2003) is the only instrument available that assesses both disgust and anxiety for blood-phobic stimuli. As inflated levels of disgust propensity (i.e., tendency to experience disgust more readily) are often observed in blood phobia, the MBPI appears a promising instrument for disgust research. First, we examined its psychometric properties. Next, it was examined whether disgust sensitivity (i.e., considering experiencing disgust as something horrid) had added predictive value compared to disgust propensity in blood phobia. Therefore, students and university employees (N = 616) completed the MBPI, indices on blood phobia, disgust propensity and sensitivity.

The MBPI proved to be reliable and valid. Further, it correlated moderately to high with disgust propensity and sensitivity. Additionally, disgust propensity and sensitivity were both significant predictors for blood phobia. In conclusion, the MBPI appears a valuable addition to the currently available arsenal of indices to investigate blood phobia.

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1. Introduction

Accumulating evidence suggests that the emotion of disgust may be crucially involved in the etiology of blood phobia (Page, 1994). For example, blood phobic participants appear to be characterized by inflated levels of disgust propensity (i.e., the tendency to experience the emotion of disgust more readily) (Olatunji, Sawchuk, de Jong, & Lohr, 2006; Page, 1994, 2003; Schienle, Schäfer, Walter, Stark, & Vaitl, 2005). Furthermore, in the presence of their phobic stimulus, blood phobic participants report to experience primarily disgust (Tolin, Lohr, Sawchuk, & Lee, 1997). Additionally, disgust-specific facial EMG becomes activated in response to blood-injury related slides (Yartz & Hawk, 2002). Lastly, a recent evaluation of Taylor's model on the hierarchical structure of fear (1998) indicated that in anxiety disorders, both trait anxiety and trait disgust contribute significantly to phobic complaints like blood phobia (McDonald, Hartman, & Vrana, 2008).

Currently, various indices are available to index blood phobia. For example, the Multiple Fear Survey (MFS; Kleinknecht, 1991), the Mutilation Questionnaire (MQ; Kleinknecht & Thorndike, 1990), the Blood-Injury Symptoms Scale (BISS; Page, Bennett, Carter, Smith, & Woodmore, 1997), Injection Phobia Scale-Anxiety (IPS-Anx; Öst, Hellström, & Käver, 1992), and the Blood-Injury Phobia Questionnaire (BIQ; de Jong & Merckelbach, 1998). Although these questionnaires are reliable and valid indices to measure blood fear, none measures the full domain of possible stimuli and responses. For example, several of these indices appear very limited with respect to the number of blood-injury phobic stimuli that are investigated. Considering the potential role of the emotion of disgust in blood phobia, questionnaires should investigate both levels of fear and disgust associated with phobic stimuli. So far, only one questionnaire exists that examines both levels of fear and disgust in relation to a wide range of blood phobic stimuli, namely the Multi-Dimensional Blood-Injury Inventory (Wenzel & Holt, 2003). The MBPI was proposed to assess five possible response types (disgust, fear, worry, avoidance, fainting) in the individual for four types of blood-injury stimuli (blood, injury, injections, hospitals), with both a self- and other-focus. The present study was designed to test psychometric properties of this promising instrument.

So far, only two studies were conducted using the MBPI. In a large sample of undergraduate students, factor analyses showed that six factors could be observed, that represented either stimulus domains or fainting. Thus, six subscales were formed: Injections, Hospitals, Injury, Blood-Self, Blood-Others, and Fainting (Wenzel & Holt, 2003). In another study (Wenzel & Sawchuk, 2004), this six-subscale version of the MBPI appeared a valid and internally consistent index. The MBPI subscales correlated meaningfully with indices of blood- and injection-fear (i.e., MQ, MFS).

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Further, discriminant validity was adequate as the total score of the MBPI did not correlate with the unrelated condition of spider fear. Yet, it should immediately be acknowledged that the research sample in that particular study was relatively small (N = 45), thereby limiting generalizability of these findings. Therefore, the first aim of the present study was to replicate the previous psychometric evaluations and to investigate whether the previously published six-factor solution (Wenzel & Holt, 2003) can be observed in an independent sample.

Furthermore, research already showed that inflated levels of disgust propensity (i.e., tendency to experience disgust more readily) are strongly associated with blood fear (de Jong & Merckelbach, 1998; Page, 1994). More specifically, blood phobia has been associated with disgust propensity towards stimuli in the animal-reminder disgust domain (A-R) (i.e., disgust for stimuli that remind people of their animal origin; see also Rozin, Haidt, & McCauley, 2000). In addition to this, recent research provided preliminary evidence to suggest that elevated levels of disgust sensitivity (i.e., tendency to evaluate the experience of disgust negatively) are also associated with blood phobia (e.g., van Overveld, de Jong, Peters, Cavanagh, & Davey, 2006). Thus, both types of trait disgust factors may be important in the aetiology of blood phobic symptoms. Since the relationship between disgust sensitivity and blood phobia has rarely been explored, a second aim of the present study was to test further whether disgust propensity and disgust sensitivity are independently associated with blood fear (BIQ, MFS, IPS-Anx), and with the MBPI in particular. We expected that the MBPI would display at least similar correlations with indices on disgust propensity and sensitivity compared to the existing indices of blood fear. Moreover, it was expected that the interplay of both disgust traits would display strong associations with blood phobic symptomatology. In addition, we explored whether associations with the various disgust subtypes (core/A-R) are strongest for the A-R-type (cf. de Jong & Merckelbach, 1998).

Finally, to control for the possibility that the predicted correlations between the MBPI and disgust propensity/sensitivity may be attributed to a generally heightened negative affect, a scale on Neuroticism was also administered.

2. Methods

2.1. Participants

For two consecutive years, a large sample of students and university employees (N = 616) was recruited at the faculties of Medicine, Health Sciences, and Psychology at Maastricht University. As women tend to be overrepresented in these faculties, both the research sample of the first (n = 309; 68% women) and second study (n = 307; 62.9% women) were characterized by a large proportion of women. Overall, participants had a mean age of 29 years (SD = 11.0; range 18–72 years).

2.2. Instruments

2.2.1. Multi-Dimensional Blood Phobia Inventory (MBPI; Wenzel & Holt, 2003)

This 40-item index measures blood-injury phobia across four types of stimuli (blood, injury, injections, hospitals) and five response types (disgust, fear, worry, avoidance, fainting). Additionally, a self versus other focus is also obtained for all items. Thus, participants rate whether the items are typical for them on a scale from 1 (='very slightly or not at all') to 4 (='extremely'). Both a total sum score (0–160) and the following subscales can be calculated: Injections (0–24), Hospitals (0–24), Fainting (0–24), Blood-Self (0–16), Blood-Others (0–16), and Injury (0–16). The

MBPI and its subscales have been shown to be internally consistent (Wenzel & Sawchuk, 2004). A professional translator translated the English version into Dutch

2.2.2. Medical Fear Survey (MFS; Kleinknecht, Kleinknecht, Sawchuk, Lee, & Lohr, 1999)

This 50-item scale assesses participants' fear for a wide range of medical-related situations and procedures, such as blood draws, visiting a hospital, and seeing wounds. Participants indicate their degree of fear on a scale from 1 (='no fear or concern at all') to 5 (='terror'). A total score can be calculated (0–200) as well as five subscales: Injections, Sharp Objects, Examinations, Blood and Mutilation (each 0–40). All are internally consistent (all α's > .78; Kleinknecht, Thorndike, & Walls, 1996)

2.2.3. Blood-Injury Phobia Questionnaire (BIQ; de Jong & Merckelbach, 1998)

This questionnaire examines both fear and fainting history for various items. On the first 10 items, participants rate their fear for 10 blood phobic stimuli on a scale from 0 (='no fear') to 4 (='maximal fear'; range = 0–40). On the second part, participants indicate their fainting history for these items on a scale from 0 (='never') to 2 (='often'; range: 0–20). Internal consistency is satisfactory (all α's > .73; Merckelbach, Muris, de Jong, & de Jongh, 1999).

2.2.4. Injection Phobia Scale-Anxiety (IPS-Anx; Öst et al., 1992)

This questionnaire assesses fear of injections. On 18 items, participants indicate their anxiety on a scale from 0 (='no anxiety') to 4 (='maximum anxiety') if they were to have an injection and/or venipuncture. A total score can be obtained (0–72). The IPS-Anx appears internally consistent (α = .89; Olatunji, Smits, Connolly, Willems, & Lohr, 2007a)

2.2.5. Disgust Propensity and Sensitivity Scale-Revised (DPSS-R; van Overveld et al., 2006)

This questionnaire measures both disgust propensity (i.e., how readily do participants experience disgust) and disgust sensitivity (i.e., how horrid do they consider experiencing disgust). Here, the shortened version was used which has recently been validated (Fergus & Valentiner, 2009; van Overveld, de Jong, & Peters, 2010). Participants rate frequency of experiencing various (bodily) symptoms, as well as their emotional impact on a scale from 1 (='never') to 5 (='always'). Both a total score (range: 12–60) and separate subscales for disgust propensity and disgust sensitivity can be obtained (both 6–30). The DPSS-R and its subscales are internally consistent (all α's > .78; Fergus & Valentiner, 2009)

2.2.6. Disgust Scale-Revised (DS-R; Olatunji, Williams, et al., 2007)

The original DS (Haidt, McCauley, & Rozin, 1994) measures disgust propensity for 32 disgust elicitors. The DS consists of two parts. On the first part, participants rate whether a series of statements applies to them (0 = 'no', 1 = 'yes'), while on the second part, participants rate how disgusted they would be when confronted with a series of stimuli (0 = 'not disgusting at all', .5 = 'slightly disgusting', 1 = 'very disgusting'). In accordance with recent recommendations (Olatunji, Smits, et al., 2007), only 25 items were used for the present analyses to calculate three subscales and a total score. In previous research (Olatunji, Williams, et al., 2007), internal consistency appeared good for the total score of the DS-R (α = .84) and satisfactory for three subscales measuring core disgust (α = .84), Animal-Reminder disgust (α = .78), and Contamination (α = .61)