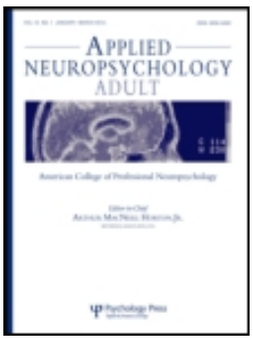

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# Exaggerating Psychopathology Produces Residual Effects That Are Resistant to Corrective Feedback: An Experimental Demonstration

Harald Merckelbach
*Forensic Psychology Section, Maastricht University, Maastricht, The Netherlands*

Brechje Dandachi-FitzGerald
*School for Mental Health and Neuroscience, Maastricht University, Maastricht, The Netherlands*

Peter van Mulken
*Forensic Psychology Section, Maastricht University, Maastricht, The Netherlands*

Rudolf Ponds
*School for Mental Health and Neuroscience, Maastricht University, Maastricht, The Netherlands*

Elly Niesten
*Forensic Psychology Section, Maastricht University, Maastricht, The Netherlands*



We explored the effects of feedback on symptom reporting. Two experimental groups ($n = 15$ each) were given a scenario with the option to exaggerate symptoms. Compared with a control condition ($n = 15$), both groups scored significantly higher on the Structured Inventory of Malingered Symptomatology. Next, one group was confronted in a sympathetic way about their symptom validity test failure, whereas the other group was confronted in a neutral manner. Both groups subsequently completed the Brief Symptom Inventory (BSI). BSI scores of both feedback groups remained significantly higher than those of control participants. Participants who had been provided with sympathetic feedback or neutral feedback did not differ in their BSI scores. Even participants who indicated during the exit interview that they had given up symptom exaggeration attained significantly higher BSI scores than those of controls, indicating that exaggeration has residual effects that are resistant to corrective feedback. We discuss cognitive dissonance as a model for understanding the residual effects of symptom exaggeration.

*Key words:* *cognitive dissonance, feedback, psychopathology, residual effects, symptom validity*

Are there effective ways to reduce deliberate symptom exaggeration in neuropsychological settings? This is a relevant question because there now exists abundant evidence that when examinees fail on tests flagging symptom exaggeration, their other neuropsychological

Address correspondence to Harald Merckelbach, Forensic Psychology Section, Maastricht University, P.O. Box 616, 6200 MD, Maastricht, The Netherlands. E-mail: H.Merckelbach@maastrichtuniversity.nl

data become largely noninterpretable (e.g., Dandachi-FitzGerald, Ponds, Peters, & Merckelbach, 2011; Fox, 2011; Kirkwood, Yeates, Randolph, & Kirk, 2012).

Decreasing the potential for symptom exaggeration may involve two stages: pretest instructions given to the examinee and corrective feedback once an examinee has failed a symptom validity test. There is, however, little consensus about the effectiveness of attempts to decrease symptom exaggeration. Some authors contend that warnings and corrective feedback should not be given at all as they may make malingerers more sophisticated in misrepresenting their neuropsychological deficits (Youngjohn, Lees-Haley, & Binder, 1999; see also Greiffenstein, 2009). Other authors advocate the so-called deterrence theory (Sullivan & Richer, 2002), which posits that warnings may reduce the probability of symptom over-reporting because they encourage potential malingerers to undertake a cost–benefit analysis of symptom distortion.

Empirical studies addressing warnings and how they impact symptom over-reporting suggest that their beneficial effects are, at best, limited. For example, in an experimental study, King and Sullivan (2009) found that warned malingerers instructed to simulate believable psychological impairment had lower depression scores compared with unwarned malingerers, yet they reported higher depression levels than those of control participants. Employing a similar design, Sullivan and Richer (2002) observed that warned malingerers had an intermediate position between controls and unwarned malingerers with regard to their self-reported psychopathology, suggesting that warnings have corrective potential but do not lead to complete normalization (see also Etherton & Axelrod, 2013; Gorny & Merten, 2005).

While the neuropsychological literature on the effects of warnings prior to test taking is limited, studies on corrective feedback during or after test taking are almost completely absent. Based on clinical experience, some authors have formulated tentative desiderata about how to provide examinees who engage in symptom exaggeration with feedback (e.g., Bush, 2009; Martelli, Nicholson, Zasler, & Bender, 2012; McMillan et al., 2009). A recurrent theme in this literature is that neuropsychologists should avoid an accusatory tone and that corrective feedback should be grounded in a nonconfrontational attitude toward the examinee. Authors agree that other factors than just malingering might underlie symptom exaggeration (e.g., the wish to be taken seriously, difficulties in staying motivated during testing) and that neuropsychologists may not have sufficient information to determine the precise cause of symptom exaggeration. Hence, a cautious approach is recommended. Another consideration is that feedback that stipulates failure on the part of the examinee may ultimately make the examinee more skillful in evading detection on subsequent symptom validity tests (e.g., Bush, 2009).

Both deterrence theory (King & Sullivan, 2009) and the cautious feedback approach seem to assume that potential malingerers have control over their symptom reporting and that providing them with warning or feedback information will motivate them to normalize their scores. On the other hand, and as already noted, the empirical literature suggests that the corrective effects of warnings do *not* produce complete normalization. In what seems to be the only empirical study on the effects of feedback, Suchy, Chelune, Franchow, and Thorgusen (2012) found that providing patients who failed a symptom validity test with corrective feedback led to improved performance on readministered cognitive tasks. But again, this improvement did not take the form of a complete normalization of scores.

Thus, it appears that malingerers continue to report above-average symptom levels even when they have been warned before testing (King & Sullivan, 2009) or have been provided with feedback during testing (Suchy et al., 2012). This phenomenon fits well with the observation that malingering produces residual effects. Merckelbach, Jelicic, and Pieters (2011; Study 1) instructed undergraduates to exaggerate symptoms on the Structured Inventory of Malingered Symptomatology (SIMS; Widows & Smith, 2005). The SIMS is a widely used self-report instrument in forensic neuropsychology that addresses atypical symptoms and experiences. Individuals who first over-reported symptoms but later—after 1 hr—were explicitly instructed to report honestly, continued to endorse more symptoms at retest compared with honest controls. Cognitive dissonance theory provides a framework for understanding such residual effects (Bayer, 1985; Merckelbach & Merten, 2012). This theory posits that people strive for consistency in their beliefs and behaviors. Thus, whenever the self-definition of being an honest and healthy person is challenged by deliberate over-reporting of symptoms, an aversive state is likely to occur. This state has motivational properties that may lead to an act of self-deception. That is to say, the person will attempt to resolve cognitive dissonance, typically by changing her beliefs (“I really suffer from symptom X”). This way, people may come to believe their inflated symptom reports.

In the current study, we focused on the effects of feedback rather than on the effect of prospective warnings. More specifically, and with the cognitive dissonance theory in mind, we wanted to explore whether providing experimental malingerers with feedback would produce normalization of their subsequent symptom reports. We compared two types of feedback: sympathetic confrontation, in which the examinee is told that (s)he failed a test without mentioning that this

indicates malingering; and neutral feedback, in which test failure is blamed on a technical error. Cognitive dissonance theory would lead one to predict that sympathetic feedback provided by an empathetic examiner (as recommended by, e.g., Martelli et al., 2012) exacerbates the dissonance between defining oneself as an honest person and engaging in deliberate misrepresentation of symptoms. Following the analysis of Bayer (1985), one would expect increased dissonance to produce more self-deception and, on balance, more residual symptom inflation. In contrast, neutral feedback would be expected to reduce malingerers' sense of responsibility for symptom distortion, thereby reducing cognitive dissonance and residual symptom inflation. In short, one would predict less normalization of symptom scores in a sympathetic feedback group than in a neutral feedback intervention. Thus, the purpose of the current experiment was to explore whether neutral and sympathetic feedback differ in their effectiveness to correct residual symptoms of malingering described by Merckelbach et al. (2011). In doing so, we looked at self-reported psychopathology rather than performance on ability-based tests.



## METHOD

### Participants

The sample consisted of 45 undergraduate students ($M_{age} = 21.3$ years; $SD = 2.1$). In accordance with the gender distribution of the undergraduate population, there were more women ($n = 35$) than there were men in our sample ($n = 10$). Undergraduates volunteered to participate in the experiment in return for course credits. The experiment was approved by the standing ethical committee of the Faculty of Psychology and Neuroscience at Maastricht University. After having signed an informed consent form, participants were assigned to one of three groups of $n = 15$ each: a control group, a malingerer group provided with neutral feedback, and a malingerer group provided with sympathetic feedback. Assignment was random, with the restriction that men and women were evenly distributed across the three groups. Note that subsample sizes of $n = 15$ are not unusual in experimental research on malingering (e.g., Bolan, Foster, Schmand, & Bolan, 2002; An, Zakzanis, & Joordens, 2012). Indeed, larger subsamples might yield empirical patterns that are significant yet bear little relevance to clinical reality, which is almost by definition oriented toward $n = 1$.

### Instruments

*Structured Inventory of Malingered Symptomatology (Widows & Smith, 2005).* Participants completed the Dutch research version (Merckelbach & Smith, 2003) of the SIMS (Cronbach's alpha = .95) that consists of 75 true/false items addressing rare and atypical symptoms (e.g., "As the day progresses my mood gets worse"). Items cover a broad range of neuropsychological domains (amnesia, neurologic impairment, psychosis, affective disorders, and low intelligence). After recoding some items, affirmative answers are summed to obtain a total SIMS score. Previous studies (e.g., Merckelbach & Smith, 2003) reported that with the cutoff set at 16, the SIMS attains high specificity and sensitivity (both >95%) in accurately identifying symptom exaggeration.

*The Brief Symptom Inventory (Derogatis, 1975).* Participants filled out the Dutch version (De Beurs, 2011) of the 53-item Brief Symptom Inventory (BSI; Cronbach's alpha = .98). Each item addresses a specific problem (e.g., "your feelings being easily hurt") and the respondent is asked to indicate on a 5-point scale (anchors: 0 = *not at all*; 4 = *always*) to what extent (s)he experienced this problem in the past 7 days. The items of the BSI tap into several psychopathological dimensions (e.g., somatization, depression, and anxiety). In the current study, we calculated a global severity score by averaging across items (range = 0–4). De Beurs (2011) reported that with a cutoff of 0.58, the classification error of the BSI when used as a screener to identify clinically raised levels of psychopathology is approximately 8%. Because the BSI takes generally less than 10 min to complete, it is one of the more widely used self-report screening instruments of psychopathology. Hajes (1997) collected data from clients at university counseling centers and reported that the BSI has adequate internal consistency and is sensitive to various types of problems (e.g., depression, anxiety). However, the BSI lacks symptom validity scales, and therefore, it is susceptible to symptom exaggeration (Holden, Starzyk, McLeod, & Edwards, 2000).

### Procedures

The experiment was announced as a study on the perception of everyday symptoms. Participants were welcomed by a research assistant (PvM) and were offered coffee and something to eat. The research assistant had a brief informal conversation with the participants. This was all done to build rapport (see Martelli et al., 2012). In the honest control group, participants filled out the SIMS, had a filler task of about 20 min, and then completed the BSI. Before filling out the tests, they were reminded that there were no right or wrong answers.

Participants in the two feedback groups were first shown three closed envelopes and were asked to choose

one of the envelopes. They were told that the research assistant was not aware of the instructions in the envelopes. All envelopes contained the same set of instructions and a civil case vignette that has been used in previous research (e.g., Dandachi-FitzGerald & Merckelbach, 2013; Merckelbach, Smeets, & Jelicic, 2009).[1] The case vignette was neutral in the sense that it was not suggestive of any particular set of symptoms. Furthermore, to maximize identification with the main character in the vignette, the description sketched a legal case that was easily imaginable for participants. Participants were instructed to imagine that they were a loyal employee who had been working for a company for 10 years. Then a new and arrogant manager arrived with whom they instantly had a dispute. They decided to call in sick. They would be visited by a medical doctor who would assess their health status and determine their entitlement to work-related monetary compensation. Participants were instructed to imagine that they would feign symptoms in a believable fashion to obtain the money. However, instructions also stressed that if the participants felt it to be morally wrong to feign symptoms, they should feel free not to engage in symptom exaggeration. Next, participants were given the SIMS.

After they had completed the SIMS, the research assistant inspected their copies. Participants in the neutral feedback group were then informed that their scores on the SIMS were exceptionally high and that apparently something had gone wrong with the test but that it was not their fault and that it was not important. They were told that they would be given a new test. The research assistant asked them to fill out this new test in an honest way. Next, participants were given the BSI.

Participants in the sympathetic feedback group were told in a friendly and warm manner that their scores on the SIMS were exceptionally high, which could be an indication that they were overstating their problems. The research assistant added that this was fully understandable, because often people may have the experience that they are not taken seriously. Thus, people may overstate their problems so as to get their message across. The research assistant pointed out that over-reporting of symptoms may nevertheless be counterproductive because it makes an accurate assessment of problems more difficult. He then asked participants to complete a new test and emphasized that it was important that they filled out the test in an honest way so that an accurate assessment of current problems was possible. Following the feedback, participants were given the BSI.

After participants had finished the BSI, they were interviewed. Participants in the feedback groups were specifically asked whether they felt they had been able to voluntarily choose the way in which they presented their symptoms. Furthermore, they were asked to what extent filling in the SIMS the way they did had made them feel bad and guilty and how strong they would rate these feelings on 5-point scales (anchors: 0 = absent; 4 = very strong). Feedback participants were also asked whether they had continued their attempts to exaggerate symptoms during the second part of the experiment (i.e., when they completed the BSI). Finally, participants were fully debriefed and thanked for their participation.

## RESULTS

Table 1 shows mean total SIMS scores of the participants. The neutral and sympathetic feedback groups scored significantly higher on the SIMS compared with the honest controls, $F(2, 44) = 15.69$, $p < .01$, indicating that overall, the two feedback groups initially exaggerated their symptoms. The two feedback groups did not differ with regard to their total SIMS scores (least square difference [LSD] post-hoc, $p = .85$). In the control group, no participant scored above the cutoff of the SIMS, whereas in the feedback groups, the majority had total SIMS scores exceeding the cutoff (see Table 1).

A similar pattern was evident for the BSI. That is, the two feedback groups continued to report more symptoms on the BSI than did the honest controls, $F(2, 42^2) = 12.06$, $p < .01$. The two feedback groups did not differ in this respect (LSD post-hoc, $p = .59$). Looking at the cutoff of the BSI, 20% of the controls exhibited raised scores, whereas these percentages were considerably higher in the two feedback groups despite the feedback (see Table 1). The Pearson product–moment correlation between SIMS and BSI scores was nonsignificant in the control group ($r = .28$, $p = .34$) but was positive and significant in the collapsed feedback groups ($r = .62$, $p < .01$), indicating that the more the participants in these groups had engaged in symptom over-reporting, the higher their subsequent BSI scores were.

The exit interview data revealed no differences between the two feedback groups. The majority of participants in both groups said that they felt they had a free choice whether or not to engage in symptom over-reporting, and there were no differences between the two groups in this respect (Fisher's exact, $p = .38$). Also, the two feedback groups reported similar levels of bad feelings because of their symptom exaggerating. Taken together, the mean rating in the feedback groups

[1]Translations of the case vignette and the feedback instructions are available upon request and can be obtained from the first author.

[2]One participant in the control group and one participant in the neutral feedback group had missing data for the BSI.

TABLE 1
Mean Scores (Standard Deviations) on the Structured Inventory of Malingered Symptomatology (SIMS) and the Brief Symptom Inventory (BSI) of the Honest Controls ($n = 15$), the Neutral Feedback Group ($n = 15$), and the Sympathetic Feedback Group ($n = 15$)

| | *Control* | *Neutral Feedback* | *Sympathetic Feedback* | *F/t* | *p* |
|---|---|---|---|---|---|
| **SIMS (0–75)** | | | | | |
| Total[a,b] | 5.9 (2.9) | 24.3 (15.6) | 26.6 (10.9) | 15.69 | <.01 |
| *n* (%) > cutoff | 0 (0%) | 10 (67%) | 12 (80%) | | |
| **BSI (0–4)**[a,b] | 0.52 (0.50) | 1.82 (1.03) | 1.68 (0.69) | 12.06 | <.01 |
| *n* (%) > cutoff | 3 (21%) | 14 (93%) | 13 (87%) | | |
| **Free choice (yes)** | | 10 (67%) | 13 (87%) | | *ns* |
| **Bad feelings (0–4)** | | 1.33 (1.39) | 1.29 (0.99) | <1.0 | *ns* |
| **Feeling guilty (0–4)** | | 1.27 (1.34) | 1.29 (1.34) | <1.0 | *ns* |
| **Stopped feigning (yes)** | | 5 (33%) | 6 (40%) | | *ns* |

*Note.* Data from the exit interview are also shown. Pairwise comparisons significant at the .01 level are designated as:
[a]control differs from neutral feedback;
[b]control differs from sympathetic feedback; and
[c]feedback conditions differ from each other.



($M = 1.31$, $SD = 1.19$) deviated significantly from 0 (no bad feelings at all), $t(28) = 5.92$, $p < .01$. Much the same was true for feelings of guilt reported during the exit interview. The two feedback groups did not differ in this regard, and taken together, their mean rating ($M = 1.28$, $SD = 1.22$) was significantly above 0 (no feelings of guilt at all), $t(28) = 5.65$, $p < .01$.

In the neutral feedback group, five participants reported that after the feedback, they had stopped exaggerating symptoms, while in the sympathetic feedback group, six participants reported no longer exaggerating. The two groups did not differ in this respect (Fisher's exact, $p = .99$). Figure 1 shows mean BSI scores of these "ex-malingerers" ($n = 10$), participants in the feedback groups who reported to have continued with symptom exaggeration ($n = 19$, "malingerers"), and the controls ($n = 14$). The three groups differed significantly in terms of their BSI levels, $F(2, 42) = 17.54$, $p < .01$. Most importantly, although the ex-malingerers had significantly lower BSI scores than those of the malingerers (LSD post hoc, $p = .01$), they also exhibited significantly higher BSI scores than those of the controls ($p = .02$).

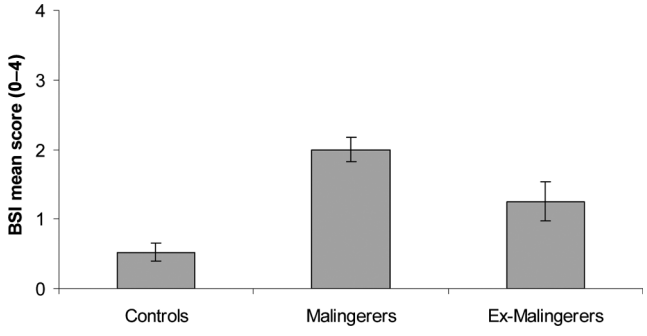


FIGURE 1 Mean BSI scores (and standard error of the means) of controls ($n = 14$), malingerers ($n = 19$), and ex-malingerers ($n = 10$).

## DISCUSSION

In the current study, the majority of the participants in the feedback groups believed that they had the freedom to choose whether or not to engage in symptom over-reporting. Also, we found evidence to suggest that their choice aroused negative feelings, although the post-hoc reported intensity of those feelings was modest (i.e., mean intensity ratings did not cross the scale midpoint of 2). Furthermore, the correlation between symptom exaggeration as indexed by the SIMS and subsequent symptom reporting on the BSI was nonsignificant in the control group, but positive and significant in the feedback groups. Given this constellation, we believe that we succeeded in inducing cognitive dissonance of the sort that Bayer (1985) described in his thought-provoking article on the self-deceptive effects of cognitive dissonance.

In general, authors have been optimistic about the effects of test feedback and the possibility that sharing test results with the examinee might reduce self-reported psychopathology (e.g., Finn & Tonsager, 1992). In the context of symptom exaggeration, clinicians have argued that corrective feedback will be more easily accepted if it is presented in a warm and friendly manner (e.g., Martelli et al., 2012). Alternatively, one could argue that such an approach might intensify the self-deceptive justification inherent to cognitive dissonance, thereby producing stronger residual effects of intentional over-reporting (e.g., Bayer, 1985). We found no indications that sympathetic feedback exacerbated cognitive dissonance or that it was counterproductive in correcting over-reporting of symptoms. As a matter of fact, sympathetic feedback was as effective (or ineffective) as neutral feedback. Indeed, the key finding in the current study is that the corrective effects of both types of feedback were, by all standards, modest. After both types of feedback, BSI scores remained similarly raised. Even in feedback participants who explicitly

reported that they had given up their role as malingerers, BSI scores continued to be high, although they were significantly lower than the BSI scores of those who had decided to continue with the over-reporting of symptoms.

The partial effectivity of corrective feedback that we observed concurs with a study by Suchy et al. (2012), who found that confronting patients about their insufficient effort results in clinically less dramatic scores on readministered tests. However, these authors also reported that about one third of the confronted patients continued to exhibit incredible test scores, and even in those patients who had normalized their performance on a symptom validity test, the normalization was not complete. The authors wrote: "[T]here may have been an attempt to perhaps 'save face' by avoiding perfect scores, thereby hoping to demonstrate that at least some of their 'difficulty' on the first test trial was genuine. It is unlikely that these patients' intent was truly to continue to exaggerate deficits during the remainder of their testing sessions (. . .)" (Suchy et al., 2012, p. 1306). This interpretation is reminiscent of the cognitive dissonance framework (Bayer, 1985; Merckelbach & Merten, 2012) and may as well apply to the pattern found in the current study.

Perhaps we would have found a superior potential of sympathetic feedback to correct symptom exaggeration if we had we contrasted this intervention with a feedback style that is more confrontational and accusatory in tone. Note that the feedback interventions that were compared in the current study differed on several dimensions (e.g., the extent to which the detection of failure is mentioned, the extent to which the examinee is provided with a justification). Using the current paradigm—symptom exaggeration as a behavioral option that participants can avoid—the systematic evaluation of various feedback styles warrants further study. Further research along these lines is important because the empirical literature on this issue is scarce despite the fact that testable ideas about effective feedback have been proposed (Martelli et al., 2012; McMillan et al., 2009).

Several other limitations of the current study deserve comment. To begin with, we did not include a no-feedback malingerer group. Comparing residual symptom reports of feedback groups with those of a no-feedback malingerer group would have provided us with a more accurate estimate of the corrective potential of feedback interventions. Clearly, this issue warrants further research. Secondly, our study was based on undergraduates. It would be informative to carry out this type of experiment with general population participants, as they may be more receptive to feedback instructions. Thirdly, the cognitive dissonance levels created in our study were far from extreme. Offering participants incentives for symptom overendorsement and threatening them with negative reinforcers in the case of symptom validity failure may produce more intense dissonance (Bayer, 1985). Fourthly, the current study relied on self-report scales to measure symptom exaggeration. Future studies may want to include ability-based measures so as examine whether the residual effects of exaggeration do also occur with this class of symptom validity test. Interestingly, a recent study by An and colleagues (2012) found that participants who fail on ability-based tasks during initial testing exhibit a similar pattern of failure during follow-up tests. This temporal stability is in line with a cognitive dissonance interpretation and it would be interesting for future studies to look at the effects of corrective feedback in such a test–retest setup.

A final limitation of the current study is related to the BSI. Although this instrument is a widely used measure of self-reported psychopathology, it lacks symptom validity scales (Holden et al., 2000). We found that after feedback, ex-malingerers still displayed elevated BSI scores, but the absence of validity scales makes it hard to know the precise meaning of these residual effects. If we would have administered embedded or standalone symptom validity tests during the retest, we might have found that residual effects go hand in hand with failure on such tests, even in individuals who claim during the exit interview that they gave up their role as malingerers. This possibility should be addressed in future studies, as it would shed light on the extent to which residual effects reflect internalized symptoms or deliberate over-reporting. What our findings do suggest, however, is that feedback in itself is no guarantee that examinees will refrain from over-reporting, and so, checks on symptom validity remain necessary after feedback (see also Suchy et al., 2012).

Recent studies demonstrate that deceptive behavior often triggers self-deception. Thus, Chance, Norton, Gino, and Ariely (2011) administered a test to their participants while giving some of them the opportunity to inspect the correct answers. Next, participants were asked to predict their future performance on a similar test without an answer key. Participants who had seen the answer key deceived themselves into believing that their high scores reflected superior intelligence. Accordingly, their expectations with regard to a future test were inflated. The current findings suggest that the reverse process—deceiving yourself into believing that you do have symptoms—may operate when people engage in symptom exaggeration during neuropsychological testing. The residual effects of symptom exaggeration may help us to understand why even after the completion of compensation procedures, malingerers may continue to exhibit inflated symptom scores during testing (Nicholson & Martelli, 2007).

There has been much speculation in the literature as to whether dissociative and somatoform complaints may lead to "unconscious" symptom exaggeration, but the current results as well as those of Merckelbach et al. (2011) suggest another causal direction: Intentional symptom exaggeration may, over time, develop

into a disease conviction that is typical for dissociative and somatoform conditions (see, for an extensive analysis, Merten & Merckelbach, 2013).

## CONCLUSION

In line with earlier studies (Merckelbach et al., 2011), our findings indicate that intentional symptom exaggeration is not a passive end state. Rather exaggeration itself produces residual symptoms that can best be understood as the self-deceptive aftermath of cognitive dissonance (Merckelbach & Merten, 2012). By this view, symptom exaggeration is more than just a complication of the diagnostic process: It is a condition that is likely to create its own clinical problems, and it is precisely this feature that justifies feedback interventions. Thus, experimental research on the effectivity of various feedback styles is clinically relevant as it might inspire new interventions to counteract the self-deceptive effects of symptom overendorsement.

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