Feigning ≠ Feigning a Memory Deficit: The Medical Symptom Validity Test as an Example

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Abstract

The Medical Symptom Validity Test (MSVT) is a widely used memory test with three built-in effort measures that aim to detect feigning. We evaluated the merits of the MSVT as a broad screening tool for symptom validity. In study 1, we interviewed participants (N = 54) about the symptoms that they would and would certainly not feign. Non-specific somatic symptoms and depression were mentioned most frequently. Nearly 10% of the participants stated that they would certainly not feign memory problems. Study 2 contrasted the diagnostic accuracy of the MSVT with that of a broad index of symptom exaggeration (Structured Inventory of Malingered Symptomatology; SIMS) in experimental malingerers (N = 42) who were free to choose which psychological symptoms to feign. Although both tests correctly identified all honest controls (100% specificity), the SIMS surpassed the MSVT in correctly identifying experimental malingerers (91% versus 45%). In study 3, we explored the overlap between MSVT effort parameters and SIMS scores in a psychiatric sample (N = 21). Only one MSVT parameter (Delayed Recognition) was significantly related to SIMS scores (φ = −.52, p < .05). The results indicate that memory-oriented symptom validity tests such as the MSVT may be useful for detecting feigned memory deficits but that such tests perform less well as screening tools for other types of feigned psychopathology.

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Introduction

Individuals who feign symptoms to obtain financial or legal benefits (i.e., malingering; see Diagnostic and Statistical Manual of Mental Disorders; DSM-IV-TR; American Psychiatric Association, 2000) may obscure forensic evaluations, clinical diagnostics, and even research data. Although prevalence rates of feigning vary widely depending on, for example, the setting (e.g., forensic evaluations versus routine clinical screening), most estimates fall in the 20-60% range (e.g., Ardolf, Denney, & Houston, 2007; Mittenberg, Patton, Canyock, & Condit, 2002; Schmand et al., 1998). Thus, prevalence estimates are sufficiently high to support the inclusion of Symptom Validity Tests (SVTs) in the psychological assessments of patients (e.g., Rohling et al., 2011). Several studies have demonstrated that patients' failure on such SVTs explain more variance in cognitive test performance than, for example, the severity of brain injury or depressive complaints (Green, 2007; Rohling, Green, Allen, & Iverson, 2002; Stevens, Friedel, Mehren, & Merten, 2008). The non-trivial prevalence of feigning and its substantial impact on test outcomes have contributed to the widely voiced view that a forensic or neuropsychological assessment is flawed when symptom validity, defined as "the accuracy or truthfulness of the examinee's behavioural presentation, self-reported symptoms or performance on neuropsychological measures", is not assessed (Bush et al., 2005; p. 420).

Against this background, the need for new, valid, and easily administered SVTs to assess symptom validity is widely recognised by clinicians and researchers. Two types of SVTs have been designed to meet this need:

symptom lists that aim to measure the over-reporting of symptoms and cognitive effort tests that aim to measure intentional underperformance.

Many clinicians conceptualise feigning monolithically and assume that when people over-report symptoms, they also tend to underperform on cognitive tasks (Berry & Nelson, 2010). Another common assumption is that malingerers have a preference for feigning memory disorders (e.g., Gervais, Rohling, Green, & Ford, 2004; Greve, Etherton, Ord, Bianchini, & Curtis, 2009; Meyers & Diep, 2000). Both of these assumptions might be questionable. For example, some studies have found that over-reporting and underperformance are two largely independent dimensions (e.g., Dandachi-FitzGerald, Ponds, Peters, & Merckelbach, 2011; Nelson, Sweet, Berry, Bryant, & Granacher, 2007; Ruocco et al., 2008). In fact, professional guidelines underscore the importance of including both types of SVTs in clinical assessments (Heilbronner et al., 2009). Furthermore, although there is some support for the claim that experimental malingerers preferably feign memory deficits, the findings in this domain may be an artifact of the experimental instructions (e.g., to feign symptoms of head injury due to a car accident; e.g., Tan, Slick, Strauss, & Hultsch, 2002).

Nevertheless, the implicit assumption that over-reporting and underperformance are equivalent and primarily involve memory complaints can be found in many papers and test manuals. An example is the Medical Symptom Validity Test (MSVT; Green, 2004), which is a verbal memory test with built-in effort measures. The idea that the MSVT is sensitive to a broad range of feigned symptoms and deficits is conveyed by its name. According to the MSVT manual, "MSVT effort test failure implies probable exaggeration of self-reported memory problems *and other symptoms*" (Green, 2004; p. 5; italics ours).

The MSVT has attained impressively high rates of sensitivity and specificity in experimental studies that have compared controls with malingerers instructed to feign memory problems. For example, Merten, Green, Henry, Blaskewitz, and Brockhaus (2005) recruited healthy volunteers and instructed half of them to perform to the best of their ability on the MSVT and the other half to feign memory impairment in a credible way. All experimental malingerers failed the MSVT whereas only one honest control failed the MSVT, suggesting nearly perfect diagnostic accuracy. Validation data from a Brazilian study that was conducted along similar lines yielded sensitivity and specificity rates that exceeded 95% (Green, 2004, Appendix B; Green, Flaro, & Courtney, 2009). Blaskewitz, Merten, and Karthmann (2008) administered the MSVT to 6- to 11-year-olds who were either instructed to perform as well as they could or to underperform (i.e., make some mistakes without performing too badly). These authors found a sensitivity of 90% and a specificity of 98% (only one of the 51 control children failed the MSVT). Furthermore, validation data indicate that the MSVT effort parameters are not sensitive to genuine cognitive impairment. For example, one study tested adults with severe traumatic brain injury and found that the overwhelming majority of the participants passed the three MSVT effort parameters (Green, 2004). In another study, children with IQs < 70 were tested, and the large majority of them passed the MSVT without difficulty (Green et al., 2009; see also Carone, 2008).

Given these impressive accuracy statistics, it is not surprising that the MSVT is employed as a screening tool for symptom exaggeration in clinical groups that do not present with memory deficits as their main complaint. For instance, Richman et al., (2006) administered the MSVT to patients with fibromyalgia, chronic pain, and soft tissue injuries. In that study, the MSVT was the only measure that was employed to assess symptom validity. We do not know, however, how the MSVT fares in groups without manifest memory complaints. This potential limitation is not unique to the MSVT. There are many other memory-oriented SVTs that hinge on the assumption that people who have a desire to appear psychologically disturbed will fail a simple memory test. Whether this assumption is valid is an empirical issue.

To address this issue, we used the MSVT as an example and conducted three studies that aimed to examine how well this memory-based SVT screens for feigned psychopathology. In a pilot study, we explored the extent to which instructed malingerers prefer memory complaints. In the second study, we tested the diagnostic merits of the MSVT and an instrument that measures symptom over-reporting, the Structured Inventory of Malingered Symptomatology (SIMS), when experimental malingerers are free to choose which psychological symptoms to feign. Specifically, we examined how successful the MSVT is in detecting the feigning of psychological symptoms other than memory

impairment. Finally, to study the MSVT in a clinical setting, we conducted a third study that explored the overlap between the MSVT and the SIMS in a sample of psychiatric outpatients.

Study 1

Only two studies have investigated the type of symptoms that instructed malingerers prefer. Both studies asked participants to imagine a scenario of traumatic head injury following a car accident. Specifically, Iverson (1995) instructed experimental malingerers ($N = 160$) to feign memory impairments and then interviewed them about their strategies. Feigning total amnesia was the most frequently reported strategy. Tan and co-workers (2002) instructed malingerers to demonstrate realistic impairments associated with head injuries. These authors noted that memory problems were the most frequently reported feigned symptoms, followed by slow response rates. An important limitation of these studies is that they relied one a single type of scenario (i.e., head injury) and did not ask instructed malingerers about the symptoms that they would avoid. We attempted to remedy these limitations in study 1.

Method

Participants and procedure

A total of 55 undergraduate psychology and law students participated in the study. One questionnaire was not completed properly and, therefore, was excluded from the analysis. The final group consisted of 54 students (40 women; 14 men) with a mean age of 22 years ($SD = 2.1$).

Participants first read a vignette about either a criminal ($n = 28$) or a civil ($n = 26$) case scenario (see Appendix A). We included these two different vignettes because a previous study suggested that experimental malingerers might report different fabricated symptoms depending on the instructions for civil versus criminal scenarios (Merckelbach, Smeets & Jelicic, 2009). In contrast to the scenarios employed in previous studies (e.g., about traumatic head injury and implying memory problems), we attempted to formulate neutral scenarios that were not suggestive of any particular set of symptoms. To maximise identification with the main character in the scenario, we selected realistic vignettes, i.e., vignettes that were based on real court cases and that were imaginable for participants. Participants who had the criminal case scenario were asked to imagine that they had caused a fatal car accident. They had never been involved in an accident before and had not consumed alcohol. As part of the criminal investigation, they would undergo a forensic evaluation. The participants were asked to imagine that they would fabricate symptoms during the evaluation in an attempt to reduce their legal responsibility.

Participants who had the civil case scenario were asked to imagine that they were loyal employees who had been working for a company for ten years. Then, a new and arrogant manager arrived with whom they instantly had a dispute. They decided to call in sick. Next, they were visited by a medical doctor who would assess their health status and determine their entitlement to work-related monetary compensation. They were asked to imagine that they would feign symptoms to obtain the money.

After reading the vignette, participants answered five questions. They were asked about the symptoms that they would feign and the symptoms that they would certainly not feign, how they would prepare for the evaluation, and whether they would feign symptoms that they had experienced in the past and, if so, which symptoms (see Appendix A).

Results

Table 1 shows the frequencies of the various symptoms that participants stated they would feign. Frequencies are provided for the total sample and the subsamples. Symptoms are included in Table 1 if they were endorsed by at least two participants in the total sample.

Table 1: Frequency (percentages) of preferred and avoided symptoms in the total sample (N = 54) and in participants instructed with a civil case vignette (n = 28) and a criminal case vignette (n = 26).

	Total sample		Civil case		Criminal case	
Preferred						
Headache	14	(26%)	6	(21%)	8	(31%)
Stress/burn-out	13	(24%)	10	(36%)	3	(12%)
Depression	12	(22%)	7	(25%)	5	(19%)
Fatigue	12	(22%)	11	(39%)	1	(4%)
Sleep difficulties	7	(13%)	3	(11%)	4	(15%)
Dizziness/nausea	7	(13%)	3	(11%)	4	(15%)
Black-out/dissociation	6	(11%)	0	-	6	(23%)
Back pain	5	(9%)	5	(18%)	0	-
Concentration difficulties	5	(9%)	3	(11%)	2	(8%)
Memory disorders	4	(7%)	0	-	4	(15%)
Psychosis	3	(6%)	0	-	3	(12%)
Vision problems	3	(6%)	0	-	3	(12%)
Anxiety disorders	2	(4%)	1	(4%)	1	(4%)
Avoided						
Psychosis	10	(19%)	4	(14%)	6	(23%)
Fever	5	(9%)	5	(18%)	0	-
Memory disorders	5	(9%)	1	(4%)	4	(15%)
Psychological disorder	5	(9%)	4	(14%)	1	(4%)
Substance abuse	5	(9%)	0	-	5	(19%)
Pain complaints	4	(7%)	3	(11%)	1	(4%)
Personality disorders	3	(6%)	0	-	3	(12%)
Epilepsy	2	(4%)	0	-	2	(8%)

For the total sample, the top four feigned symptoms were headache, stress/burn-out, depression, and fatigue. For the subsample instructed with the civil case scenario, a similar top four emerged, although the rank order was slightly different, with fatigue being mentioned most often. For the criminal case scenario subsample, however, black-out/dissociation ranked second, and stress/burn-out and fatigue were at the bottom of the ranking.

Memory disorders were not included in the top four symptoms for the overall sample or the participants who had the civil case instructions. This result was also true for participants instructed with the criminal case scenario, at least if black out/dissociation is considered a highly restricted memory problem. A closer analysis revealed that these participants mentioned amnesia only two times and forgetfulness only two times.

Table 1 also provides the frequencies of symptoms that participants stated that they would avoid. Psychotic hallucinations and delusions were the most frequently mentioned symptoms. There were, however, differences between participants instructed with a civil case scenario and those with a criminal case scenario. For example, some participants who had been given the criminal case scenario mentioned substance abuse and personality disorders; however, these categories were not mentioned by participants with the civil case scenario. On the other hand, a number of civil case scenario participants stated that they would avoid fever as a feigned symptom, but none of the criminal case participants mentioned this symptom. Memory complaints were mentioned five times as symptoms that one should certainly avoid, most often by criminal case scenario participants.

With respect to how they would prepare for a forensic assessment, most participants (78%) indicated that they would search the Internet and read about symptoms and tests. Fifteen participants (28%) reported that they would boost their symptom presentation, for example, through sleep deprivation. When specifically asked, 20 participants (36%) stated that they would imitate symptoms that they had experienced previously (e.g., migraine).

Discussion

Study 1 relied on a relatively small sample that is not representative of the general population. In addition, this study examined self-reports of feigned symptoms and did not directly examine actual behaviour. Notwithstanding these limitations, the findings suggest that memory is not the first or the major target when people consider feigning psychological problems. Some individuals may even actively avoid feigning memory problems. This result contradicts earlier studies that found memory deficits to be the most prominent targets for feigning (Iverson, 1995; Tan et al., 2002). A plausible explanation for this discrepancy is the different ways in which participants were instructed. The head injury scenarios employed by the previous studies might induce a stronger preference for feigned memory problems than the legal case vignettes employed in the current pilot study.

More generally, Table 1 shows that people report a wide variety of psychological symptoms as potential targets for feigning. Furthermore, they are not consistent in terms of preferred and avoided target symptoms. Therefore, it is difficult to predict the types of pathology that malingerers will attempt to feign, suggesting the usefulness of SVTs that pertain to a broad spectrum of symptoms (e.g., the SIMS; see below).

Two issues must be considered in interpreting the results of the current pilot study. First, explicit memory problems were not mentioned very often, but the symptoms that *were* chosen frequently (e.g., headache, fatigue, depression, stress/burnout) are typically accompanied by self-reported memory difficulties (e.g., Iverson & McCracken, 1997). Second, even when malingerers do not explicitly complain about memory problems, they may still decide to underperform on a memory-oriented SVT during a neuropsychological assessment because of their tendency to present an implausible degree and range of impairment. Thus, the results of the pilot study do not cast doubts on the usefulness of the MSVT. Assumptions about the universal preference of malingerers for feigned memory impairments may be ill-founded; however, this does not preclude the MSVT to attain impressive accuracy statistics.

Study 2

Using an experimental approach, we tested the diagnostic accuracy of the MSVT when instructed malingerers were free to choose which psychological symptoms to feign. We compared the accuracy of the MSVT under this condition with a widely used self-report instrument that taps into the tendency to over-report symptoms in several domains (e.g., psychosis, mood disorders, and neurological deficits).

Method

Participants

Sixty-two undergraduate psychology students (14 men, 48 women) participated in the study. Their mean age was 22 years (*SD* = 3.7; range 18-40 years). Participants were randomly assigned to one of the three following conditions: an honest control group (*n* = 20), a malinger group instructed with a civil case vignette (*n* = 21), and a malinger group instructed with a criminal case vignette (*n* = 21). There was no overlap between the participants in study 1 and those in this study. The students received course credits for their participation. The study was approved by the standing ethical committee of the Faculty of Psychology and Neurosciences, Maastricht University.

Measures

Medical Symptom Validity Test (MSVT).

The Dutch version of the MSVT (Green, 2004) was used. The MSVT is a verbal memory test with built-in effort measures. The test is computerised, which makes it easy to administer. The MSVT consists of 10 word pairs that refer to semantically related objects (e.g., ballpoint-pen). Word pairs are presented two times on a computer screen. During the Immediate Recognition trial (IR) that follows, the participant is asked to choose the target words from 20 new word pairs (e.g., ballpoint from ballpoint-bicycle). After 10 min, a Delayed Recognition trial (DR) that is similar to the IR is administered, except different foil words are presented (e.g., ballpoint–house). The computer software not only calculates IR and DR correct scores but also determines the consistency with which the

participant generates correct and incorrect items on IR and DR, which yields a Consistency Score (CNS). IR, DR, and CNS scores intend to capture effort. Green (2004) recommended a cut-off score of 85% correct for IR, DR, and CNS. Following the DR, two additional trials are administered: the Paired Associates (PA) trial, in which the participant is cued with the first word from each word pair and must reproduce the second word (e.g., ballpoint-?), and the Free Recall (FR) trial, in which the participant must recall as many words as possible from the original list. An additional set of criteria is proposed to determine post-hoc whether failure on the effort parameters is a manifestation of poor effort (i.e., Poor Effort Profile) or reflects genuine severe cognitive impairment (i.e., Dementia Profile). Failure on one of the effort parameters, along with an 'easy subtests' (IR, DR, and CNS) mean score that is at least 20 points higher than the 'hard subtests' (PA and FR) mean score, a higher score on PA than on FR, and a higher score on IR and DR than on FR, is thought to indicate possible dementia.

Structured Inventory of Malingered Symptomatology (SIMS).

Participants also completed a Dutch research version of the SIMS (Widows & Smith, 2005). The SIMS consists of 75 true-false items that describe low-frequency symptoms and experiences. There are five subscales, which each contain 15 items: amnesia (e.g., "More than three times a day I find myself getting up to get something only to forget what it was"), neurologic impairment (e.g., "There is a constant ringing in my ears"), psychosis (e.g., "The voices that I hear, have never stopped since they began"), affective disorders (e.g., "As the day progresses my mood gets worse"), and low intelligence (e.g., "I cannot count backwards from 20 to 1 without making a mistake"). After recoding some items, affirmative answers are summed to obtain a total SIMS score, with higher scores indicating more symptom over-reporting. Following the recommendations of Rogers, Hinds, and Sewell (1996), we used a cut-off score of 16 to identify feigning. A study on the Dutch research version of the SIMS (Merckelbach & Smith, 2003) with a group of 298 participants revealed a specificity of 98% and a sensitivity of 93% with the cutoff set at 16. In a follow-up study with coached malingerers, the SIMS maintained high sensitivity and specificity (both ≥ .80; Jelicic, Hessels, & Merckelbach, 2006). Studies that have used a known-groups design in civil (Alwes, Clark, Berry, & Granacher, 2008; Clegg, Fremouw, & Mogge, 2009; Wisom, Callahan, & Shaw, 2010) and criminal forensic (Edens, Poythress, & Watkins-Clay, 2007; Lewis, Simcox, & Berry, 2002; Vitacco, Rogers, Gabel, & Munizza, 2007) samples have also indicated that the SIMS is an effective screening instrument for feigned psychopathology, with sensitivity rates of 85%-100%.

Manipulation Check. After the experiment proper, participants were given an additional manipulation check questionnaire to verify role commitment and to examine which symptoms they attempted to feign.

Procedure

Participants were tested individually in a classroom at the faculty building. Participants in the honest control group were instructed to do their best on the MSVT and to complete the SIMS honestly. Similar to the pilot study, malingerers were instructed with either a criminal or a civil case vignette that was based on an actual Dutch court case (see Merckelbach et al., 2009). However, in study 2, the two scenarios were more similar to each other in terms of content compared with those used in the pilot study (see Appendix B). In short, the criminal scenario concerned a case about a person who witnessed his young nephew being approached by a known child molester; the defendant stabbed the paedophile to death. Participants were asked to identify with the defendant and to credibly feign psychological symptoms to minimise criminal responsibility. The civil scenario was about a person who witnessed his nephew's death in a car accident. Participants were asked to identify with the witness and to feign psychological symptoms to claim compensation in a civil law suit against the driver.

Honest controls and instructed malingerers first completed the learning trials and the IR test of the MSVT. During a 10 min delay period, the participants completed the SIMS. Then, the second part of the MSVT (DR, PA, and FR) was administered. In addition, the instructed malingerers completed the manipulation check questionnaire.

Results

For the total sample, the Spearman rho correlation between MSVT effort parameters and SIMS was −.29 for IR, −.49 for DR, and −.47 for CNS (all $ps < .05$), with poorer performance on the MSVT effort parameters associated with higher scores on the SIMS.

We performed one-way Analyses of Variance (ANOVAs) with group as the independent variable and the MSVT effort parameters (i.e., IR, DR, CNS) and the SIMS total score as dependent variables. Table 2 summarises the results of these ANOVAs.

Table 2: Mean scores (SD) on the MSVT effort parameters (IR, DR and CNS) and the SIMS in the three groups

Measure	Group 1 Honest Controls ($n = 20$)	Group 2 Malingerers, civil ($n = 21$)	Group 3 Malingerers, criminal ($n = 21$)	F	p-value	Eta squared	Sheffé post-hoc group comparison
MSVT IR	99.0 (2.1)	92.4 (13.7)	90.7 (15.5)	2.67	.08	.29	-
MSVT DR	99.8 (1.1)	87.4 (17.7)	82.9 (20.2)	6.39	< .05	.42	1 > 2,3
MSVT CNS	99.3 (1.8)	85.0 (21.9)	82.6 (19.7)	5.58	< .05	.40	1 > 2,3
SIMS	4.5 (3.5)	27.9 (7.7)	30.1 (10.3	69.77	< .05	.84	1 < 2,3

Notes: MSVT = Medical Symptom Validity Test; IR = Immediate Recognition; DR = Delayed Recognition; CNS = Consistency Score; SIMS = Structured Inventory of Malingered Symptomatology

There were significant group differences for DR and CNS [$F(2, 59) = 6.39$, $p < .05$, $\eta^2 = .42$ and $F(2, 59) = 5.58$, $p < .05$; $\eta^2 = .40$, respectively], whereas the group difference for IR reached only borderline significance, $F(2, 59) = 2.67$, $p = .08$, $\eta^2 = .29$. As shown in Table 2, honest controls had overall higher scores on the effort parameters than the two instructed malingerer groups, which did not differ from one another on any of the parameters, all $ts(40) < .85$, all $ps > .43$. Furthermore, the groups differed with respect to their SIMS scores, $F(2, 59) = 69.77$, $p < .05$, $\eta^2 = .84$. Post-hoc Sheffé's comparisons revealed the expected pattern in that honest controls scored lower on the SIMS than both instructed malinger groups, $p < .05$ for all comparisons. The civil and criminal case scenario groups did not differ from each other with respect to the SIMS ($p = .64$).

Table 3 shows the number (percentages) of participants in the three groups correctly classified by the MSVT and SIMS. Chi-square tests revealed significant differences between honest controls and malingerers in the number of participants who failed the SIMS, $\chi^2(1) = 43.0$, $p < .01$ and the MSVT, $\chi^2(1) = 11.0$, $p < .01$. Again, neither the detection rate (i.e., sensitivity) of the SIMS nor that of the MSVT differed as a function of the type of malinger scenario, both $\chi^2s(1) < .05$, both $ps > .7$. All honest responders were correctly classified, resulting in a specificity of 100%. Most important, the SIMS surpassed the MSVT in terms of sensitivity. The SIMS correctly identified 91% of the experimental malingerers (38 out of 42) compared with 45% (19 out of 42) correctly identified by the MSVT, $\chi^2(1) = 17.68$, $p < .01$.

Table 3: Number (percentages) of participants in the honest control group ($n = 20$) and the civil ($n = 21$) and criminal ($n = 21$) experimental malinger groups, correctly classified by the MSVT and SIMS

	Honest Controls	Malingerers, civil	Malingerers, criminal
MSVT	20 (100%)	9 (43%)	10 (48%)
SIMS	20 (100%)	19 (91%)	19 (91%)

Notes: MSVT = Medical Symptom Validity Test; SIMS = Structured Inventory of Malingered Symptomatology

Surprisingly, 10 of the 19 instructed malingerers who failed the MSVT met the criteria for a "Dementia Profile". Taking these false negatives into account would reduce the sensitivity of the effort parameters to 21% (9 out of 42).

With respect to the type of symptoms feigned, 19 (45%) instructed malingerers reported that they attempted to feign depression, 14 (33%) stated that they feigned memory impairment, and 10 (24%) indicated that they endorsed psychotic symptoms. Chi-square tests revealed that the two malinger groups did not differ in the types of symptoms (i.e., depression, memory impairment, and psychotic symptoms) that they attempted to feign, all $\chi^2s(1) < .87$, all $ps > .05$. Of the 14 instructed malingerers who stated that they feigned memory impairment, 9 (64%) failed

the MSVT. Of the 28 instructed malingerers who did not report they feigned memory impairment, only 10 (36%) failed the MSVT, a difference that approached significance, $\chi^2(1) = 3.08$, $p = .08$.

Discussion

The current findings suggest that the MSVT is a highly specific test that attains relatively low sensitivity in the detection of feigned psychological symptoms other than memory problems. The impressive sensitivity that previous simulation studies reported for the MSVT (e.g., Merten, Green, Henry, Blaskewitz, and Brockhaus, 2005) might be inflated by the instruction to feign memory disorders. The present study's instructions to feign any psychological symptoms that participants perceived to be instrumental in the context of the case vignette likely undermined the sensitivity of the MSVT. As previously mentioned, the MSVT is recommended as an instrument that is capable of detecting feigning in several domains. The present results cast doubts on this ambition. In the current study, the SIMS performed better as a broad screening tool for symptom validity. Furthermore, the present results did not support the criteria for the Dementia Profile. The application of these criteria to healthy students who were instructed to feign resulted in an unacceptably high rate of Dementia Profile classifications. This point is critical because research on the accuracy of this profile is limited. In a study by Singhal, Green, Ashaye, Shankar, and Gill (2009) on institutionalised patients with severe dementia, the Dementia Profile was found to be highly specific. That is, all 10 dementia patients in the study obtained a Dementia Profile. Similarly, 25 of the 30 patients with advanced dementia (83%) in an unpublished study by Brockhaus (cited in Green, 2004) obtained a Dementia Profile. However, Axelrod and Schutte (2010) questioned the usability of the Dementia Profile. In their mixed clinical sample, patients with a Dementia profile on the MSVT did not perform more poorly on standard memory tests than patients who failed the MSVT without such a profile.

A final note concerns the finding that 36% of the experimental malingerers who did not explicitly state that they attempted to feign memory impairment failed the MSVT. Because we did not interview participants about how they perceived the MSVT, we have no ready explanation for this finding. One possible explanation for this finding is that some of the experimental malingerers considered memory impairment to be a component of the depression or psychosis that they feigned.

In sum, the results of study 2 suggest that the MSVT is not particularly effective in detecting feigning when it is administered to experimental malingerers who are free to choose which psychological symptoms to feign. However, one could counter that study 2 relied on intelligent and healthy students who were asked to play the role of a malingerer. With this limitation in mind, we conducted study 3.

Study 3

In study 3, we explored the relation between the MSVT and SIMS scores in psychiatric patients. If the MSVT is effective in detecting exaggeration in various domains of psychopathology, one would expect a considerable overlap between MSVT parameters and SIMS scores.

Method

Participants

Participants were psychiatric outpatients who had been referred for standard neuropsychological assessment at Mondriaan Maastricht, a mental health care institute in the Netherlands. The sample consisted of 21 consecutive referrals (13 men, 8 women), with a mean age of 33 years (SD = 11.8; range 19-55 years). Fourteen patients were referred for a possible diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) and 6 for a possible diagnosis of Autism Spectrum Disorder (ASD). One patient who received treatment for an anxiety disorder was referred because cognitive deficits that possibly reflected mild dementia were suspected. We focused on these patients because there are indications that in these clinical groups, secondary gain issues (including psychostimulant medication and academic or work accommodations) may motivate patients to exaggerate their symptoms (e.g.,

Sullivan, May, & Galbally, 2007). Patients were asked to volunteer in the current study and signed an informed consent form.

Measures and procedure

Patients were first given the informed consent form. Next, in two individual sessions, the patients completed a standard neuropsychological test battery that included the SIMS. Additionally, the patients were given the MSVT. The tests were administered by a certified psychological assistant or by trained clinical psychology master students who were supervised by a clinical neuropsychologist. The MSVT was positioned at the beginning of the first test session. During the delay period of 10 min, the patients completed the SIMS.

Results

Table 4 provides the mean scores of the MSVT effort parameters and the SIMS. Neither the MSVT effort parameters (IR, DR, and CNS) nor the SIMS correlated with age (all φs < .29, all ps > .05). The Spearman rho correlation between the DR subtest of the MSVT and the SIMS (φ = −.52, p < .05) was significant, with lower scores on the DR associated with higher scores on the SIMS. However, the SIMS was not significantly associated with the other two effort parameters, IR (φ = −.29, p = .20) and CNS (φ = −.31, p =.17).

Table 4: Mean scores (SD) and range of MSVT effort and SIMS scores in the psychiatric patient sample (N = 21)

	M	Range
MSVT IR	93.6 (9.4)	65-100
MSVT DR	90.7 (11.4)	65-100
MSVT CNS	88.1 (15.4)	50-100
SIMS	13.4 (11.8)	2-39

Notes: MSVT = Medical Symptom Validity Test; IR = Immediate Recognition; DR = Delayed Recognition; CNS = Consistency Score; SIMS = Structured Inventory of Malingered Symptomatology

The modest association between MSVT and SIMS was also apparent when considering how often the tests agreed and disagreed. The results are summarised in Table 5. A Chi-square test revealed no significant difference in failure rate of the MSVT (6 out of 21 patients) and the SIMS (8 out of 21 patients), χ^2(1) = 0.29, p = .59]. In terms of Cohen's Kappa, the proportion of agreement between SIMS and MSVT (corrected for chance) was .58 (95% confidence interval: .21, -.94), which represents a moderate level of agreement. A closer analysis revealed that whereas the SIMS and MSVT were quite consistent for cases classified as 'pass', they disagreed for several cases classified as 'fail'. Of the 8 patients who failed the SIMS, only five (62.5%) also failed the MSVT. On the other hand, of the 6 patients who failed the MSVT, five (83.5%) also failed the SIMS. Remarkably, the patient who failed the MSVT effort parameters but not the SIMS was diagnosed with early dementia during a follow-up diagnostic examination (including neuroradiology) in the academic hospital of Maastricht University. This patient exhibited a Dementia Profile on the MSVT. However, two patients who exhibited a Dementia Profile did not have severe cognitive impairments consistent with dementia. These two patients scored above the cutoff of the SIMS. Thus, in these two patients, the Dementia Profile produced false negatives.

Table 5: Number of patients (percentages in parentheses) who passed or failed the MSVT effort parameters and the SIMS (N = 21)

		MSVT effort parameters	
		Pass	**Fail**
SIMS	Pass	12 (57%)	1 (5%)
	Fail	3 (14%)	5 (24%)

Notes: MSVT = Medical Symptom Validity Test; SIMS = Structured Inventory of Malingered Symptomatology

Discussion

Two limitations of study 3 warrant comment. First, we do not know the ground truth of symptom validity in this clinical sample, and therefore, the diagnostic accuracy of both instruments remains uncertain. Second, the patient sample was small. Therefore, this study should be considered to be explorative in nature. However, it can be concluded with some confidence that the overlap between MSVT and SIMS is moderate at best. Only one MSVT effort parameter (i.e., DR) was significantly correlated with the SIMS. Although the correlations might underestimate the true associations due to the restricted variance of the MSVT scores, a moderate association also appeared when examining the consistency with which the instruments classified failures. For 19% of the patients, the MSVT and SIMS were inconsistent in determining whether the patient failed or passed. However, when the patient with the early signs of dementia was excluded, failing the SIMS perfectly overlapped with failing the MSVT, suggesting that the MSVT has no incremental diagnostic value. In sum, the SIMS predicts poor effort on the MSVT, but poor effort on the MSVT does not predict the over-reporting of symptoms on the SIMS. We believe that this asymmetry reflects the narrow focus of the MSVT on memory performance.

General Discussion

The current studies evaluated the merits of the MSVT as a broad screening tool for feigned psychopathology. The main results can be catalogued as follows. First, in contrast to other authors' (e.g., Iverson, 1995) suggestions, we found that memory is not the top target of people who consider feigning symptoms. In the pilot study, headaches, stress/burnout, depression, and fatigue were most frequently mentioned. This top four is likely to be an echo of the symptoms with which people are familiar. Moreover, nearly 10% of the participants stated that they would certainly not feign memory impairments. In line with this result, only a minority (i.e., 33%) of the participants in study 2 reported that they attempted to feign memory problems. The MSVT and a range of other widely used tests, such as the Test of Memory Malingering (TOMM; Tombaugh, 1996) and the Amsterdam Short-Term Memory test (ASTM: Schmand & Lindeboom, 2005), capitalise on suboptimal effort within the context of memory performance, thereby assuming that this type of effort is a marker of broadly defined feigning. The current findings cast doubts on this assumption.

Second, the results of the pilot study replicated previous findings that suggested a subtle difference between malingerers instructed with a civil case vignette and those instructed with a criminal case vignette (Merckelbach et al., 2009; Peace & Masliuk, 2011). Note, however, that study 2 did not find differences between the civil and criminal malinger groups in MSVT and SIMS failure rates. One explanation for this discrepancy might be that study 2 relied on case vignettes that were highly similar in content (i.e., both centred on a person witnessing a close family member in danger) and that both malinger groups were instructed to feign psychological symptoms. The most systematic simulation study to date that addressed this issue is that of Peace and Masliuk (2011). These authors determined that feigning motivated by revenge or compensation resulted in higher symptom levels than feigning motivated by a need for attention. The results of the current study 1 and those of Peace and Masliuk (2011) reinforce the general point that apart from individual preferences for feigning certain symptoms, there is a non-trivial influence of the type of case scenario on the behaviour of experimental malingerers, thereby limiting the generalisability of experimentally obtained accuracy estimates of SVTs. This finding is consistent with the idea that malingering is a flexible and strategic response to aversive circumstances (e.g., Rogers, 2008). The methodological implication is that the diagnostic qualities of tasks such as the MSVT should be tested in simulation studies that involve a whole spectrum of scenarios and motives. Asking participants to feign a memory disorder is more a tautological operation than a strict test of the diagnostic merits of a SVT. This point also highlights the limitations of the present studies 1 and 2. Apart from the relatively small samples that mainly consisted of female undergraduates, the studies relied on only two malinger instructions that were conducive to psychological symptoms. Thus, when we conclude that the SIMS is more encompassing than the MSVT, this conclusion is only justified for the constellations mimicked in studies 1 and 2.

Third, one widely held assumption is that memory-oriented SVTs such as the MSVT are capable of detecting feigning in malingerers who do not present with memory deficits as their main complaint. The present results demonstrate that this assumption should not be accepted uncritically. In study 2, the MSVT attained a low

sensitivity in instructed malingerers who were free to choose which psychological symptoms to feign. Whereas both the MSVT and SIMS were highly specific (i.e., all honest controls passed both tests), we found the SIMS to be a better screening tool for symptom validity. The most likely reason for this finding is that the SIMS evaluates a broad range of neurological and psychological symptoms, whereas the MSVT focuses on memory. In accord with this notion, in the patient group of study 3, we found limited agreement between the MSVT effort parameters and the SIMS. Richman et al. (2006; p. 304) employed the MSVT as an index of effort "and, by implication, symptom exaggeration" in a series of 106 cases undergoing an independent medical examination. The current results do not justify such an operationalisation of symptom exaggeration. At a minimum, the results suggest that when clinicians or researchers evaluate symptom validity, they should combine the MSVT (or any other memory-oriented effort test) with a self-report measure such as the SIMS, which is sensitive to a broad spectrum of feigned psychopathology (see also Dandachi-FitzGerald et al., 2011; Rogers & Correa, 2008; Rogers & Payne, 2006).

Another practical implication of the current findings relates to test development. To date, the main target of effort test design has been the detection of underperformance during a simple memory task, with little attention given to feigning in other cognitive domains (e.g., attention, motor behaviour, abstraction, language). Rogers (2008) rightly argued that this focus on memory deficits is a problematic research trend, and he advised clinicians "to utilize methods appropriate to the purported deficits" (Rogers, 2008; p. 23). The present results concur with his point, as they show that there are feigned symptoms other than memory complaints that might fly under the radar of the memory-oriented SVTs.

Future research can further our understanding of feigning by systematically interviewing experimental malingerers about why they prefer to feign certain symptoms and avoid other symptoms. It would also be informative to administer SVTs to instructed malingerers and then employ think-aloud protocols to explore the strategies that malingerers rely upon when they are confronted with tests. More parametric research is needed on the diagnostic accuracy of memory-oriented SVTs in people who prefer to feign certain symptoms and avoid other symptoms. In particular, research on the detection of feigned somatic complaints (e.g., fatigue, pain) is warranted. Until now, research on chronic pain and fatigue has primarily employed effort tests to detect potential feigning (e.g., Gervais et al. 2004; Greve et al., 2009). The present findings call for rigorous testing of the sensitivity of these effort measures in these conditions that are notoriously difficult to diagnose, along with the development of tools that specifically target feigned somatic health problems.

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Appendix A: Instruction and Case Vignettes Study 1

Criminal case

Suppose that you have caused a fatal accident. You did not drink any alcohol and have never before been involved in an accident. The victim, however, did drink, and that is why he had suddenly crossed the street. The pending criminal proceedings will, certainly in the case of a conviction, significantly damage your career. The prosecution is investigating the circumstances of the accident. As part of the criminal investigation, a forensic doctor will examine you to determine your medical status so as to establish whether you carry any responsibility. You decide to simulate symptoms in order to be acquitted by the judge.

Civil case

Suppose that you have been a loyal employee to your organisation for more than 10 years. In all those years, you have been working very hard, often more than 50 hours a week so as to support your colleagues and the organisation. One day, a new manager arrives and already at your first meeting with him, you have a serious argument with him. He is an arrogant, man and he announces that in the near future, you have to look for another job outside the organisation. The next day, you decide to report yourself ill for the next months. After a couple of days, a medical officer visits you to determine your medical status. You decide to feign symptoms so as to become entitled to work-related disability money from your organisation.

Please briefly answer the following questions:

1. What type of symptoms are you going to feign?
2. What type of symptoms would you certainly not feign?
3. How would you prepare yourself so as to feign in a credible way?
4. Would you feign symptoms of a disease you have had before?
5. If so, which symptoms would that be?

Appendix B: Instruction and Case Vignettes Study 2

Instruction honest control group

Your task in this study is to complete a number of scales about psychological symptoms. Please try to be as honest and as accurate as possible in the answers you provide. We also ask you to undergo a brief memory task. Please try to perform to the best of your abilities on this task.

Instruction experimental malingerers; criminal setting

Please read the information below carefully. Try to imagine that the story is about you. In other words, imagine that *you* are the main character in this story and that *you* really experienced the events sketched in the story.

Suppose that you would watch on a sunny morning from your kitchen window how your little nephew, who is playing in the street, is approached by a guy. You know that there are all kinds of rumours going around about this guy. Rumours have it that he feels an unsound attraction to children. Rumours also have it that he has been previously convicted for that. You now watch how the guy is talking with your nephew and how he makes inviting gestures in the direction of his car. You are alarmed. You grasp a kitchen knife, run outside, and you make stabbing movements in the direction of the man. You hit him in his breast. He falls to the ground and is bleeding heavily. In the meanwhile, people from the neighbourhood have gathered, and one of them calls the police and an ambulance. The police arrest you and bring you for interrogation to the police station. One of the police officers tells you that the guy has died in the hospital. He also tells you that this means that the police will have to investigate whether you have committed manslaughter.

You see only one solution: you decide to tell the police a story about:

- that you yourself have had bad experiences in your youth;
- that you still suffer from the psychological effects of these experiences;
- and that for some time now, you have been confused and have had difficulties with arranging your life.

To test the authenticity of your story about the psychological effects and about your confusion, the police order a psychiatrist to examine you. The psychiatrist administers the tests that will follow in a minute. Try to present as someone who still suffers from the psychological consequences. However, try to do this in a convincing way. In other words, don't go over the top.

Instruction experimental malingerers; civil setting

Please read the information below carefully. Try to imagine that the story is about you. In other words, imagine that *you* are the main character in this story and that *you* really experienced the events sketched in the story.

Suppose that you would watch on a sunny morning from your kitchen window how your little nephew, who is playing in the street, is hit by a car driven by a guy. The guy drives far too fast. You know that there are all kinds of rumours going around about this guy. Rumours have it that he often drives like crazy. Rumours also have it that he has been previously convicted for that. You now watch how your nephew lies bleeding on the street and how the guy slowly comes out of his car and is standing passively at the scene. You are alarmed. You call an ambulance and you run outside. You try to help your nephew. In the meanwhile, people from the neighbourhood have gathered, and one of them calls the police. The police arrest the guy and bring him to the police station. After a couple of hours, the man is released. Your nephew dies in the hospital. You are outraged by his release and therefore decide to file a lawsuit against the guy, asking for financial compensation. During the court hearing, you tell the judge:

- that you have aversive pictures of the accident in your head;
- that you still suffer from the psychological effects of the accident;
- and that for some time now, you haven been confused and have had difficulties with arranging your life.

To test the authenticity of your story about the psychological effects and about your confusion, the judge orders a psychiatrist to examine you. The psychiatrist administers the tests that will follow in a minute. Try to present as someone who still suffers from the psychological consequences. However, try to do this in a convincing way. In other words, don't go over the top.