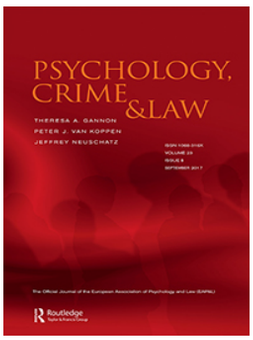

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The Verifiability Approach to detection of malingered physical symptoms

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ABSTRACT

Inspired by recent research showing that liars are reluctant to include verifiable details in their accounts, we explored in two studies ($N = 125$; $N = 105$) whether participants who report fabricated symptoms ('malingerers') present fewer verifiable details than participants who report genuine ill-health symptoms. In Study 1, participants were instructed to describe a typical day on which they had experienced a genuine or malingered symptom. Truth tellers' statements included significantly higher proportions of verifiable details concerning the reported symptoms than malingerers' statements. Compared with truth tellers, malingerers generated longer statements with more unverifiable details. In Study 2, we informed participants that their statements may be assessed for verifiable or checkable details. Malingerers often mentioned 'false' witnesses to provide checkable information and differences between malingerers and truth tellers in statement length, and checkable and uncheckable details were no longer significant. The utility and implications of the Verifiability Approach to detection of malingering are discussed.

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Verifiability Approach; malingering; detection of deception; physical symptoms; symptoms report

Fabrication of physical symptoms in a medico-legal context burdens the health care system and ultimately may harm the care that genuine patients deserve (Bianchini, Greve, & Glynn, 2005). Thus, it is important to develop tools and strategies that can help in identifying people who fabricate ('malinger') symptoms of ill health. Malingering is defined as the intentional production of false or grossly exaggerated symptoms motivated by external incentives. Incentives may consist of financial rewards gained through personal injury litigation or workers' compensation procedures (McDermott & Feldman, 2007), or reduced criminal responsibility (American Psychiatric Association, 2000, p. 739). It is difficult to determine on what scale malingering occurs, because 'successful' malingerers remain undetected (Resnick, West, & Payne, 2008). However, a conservative estimate is that, for example, 20% of chronic pain patients exaggerate their symptoms (Greve, Ord, Bianchini,

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& Curtis, 2009), while in cases of mild head injury and chronic fatigue prevalence rates of malingering are an estimated 35% (Mittenberg, Patton, Canyock, & Condit, 2002).

The most frequently used methods for the detection of malingering involve examining intentional underperformance on simple memory tasks (e.g. Iverson & Binder, 2000) or examining over-endorsement of physical or psychological symptoms on self-report tests (Merten, Merckelbach, Giger, & Stevens, 2016). Such tests are called Symptom Validity Tests and have shown to be useful in forensic settings (see Bianchini, Mathias, & Greve, 2001; Sleep, Petty, & Wygant, 2015), but less so in medical settings (Rogers, Sewell, & Salekin, 1994; Schoenberg, Dorr, & Morgan, 2003).

In general, malingering of physical symptoms such as pain have been under-researched, or investigated mainly through psychometric perspective (see Crighton, Wygant, Applegate, Umlauf, & Granacher, 2014). Pain is a reliable concomitant of many physical symptoms, but research so far has failed to design specific methods to detect malingering of pain (Fishbain, Cutler, Rosomoff, & Rosomoff, 1999; Greve, Bianchini, & Brewer, 2013). One difficulty in detecting fabrication of physical symptoms such as pain is that genuine symptoms do fluctuate over time in intensity and durability (Fishbain et al., 1999). Malingers can therefore report about their genuine 'bad' moments from the past, as if they are still ongoing. Another difficulty is that it is impossible to quantify pain with methods that are independent of patients' self-reports (McDermott & Feldman, 2007). Finally, almost everyone is familiar with pain as a symptom and therefore most malingerers are likely to know what kind of sensations should be reported to appear convincing, which impedes the detection of malingering in this domain (Hamilton & Feldman, 2001).

Given these considerations, there is a need for novel malingering detection methods that not just focus on memory functioning and/or psychopathology, but on the verbal details of patients' symptom reports. One recent study that addressed this issue in a systematic fashion is that of Akehurst et al. (2017). These researchers employed a combination of criteria of different verbal lie detection methods, such as Criteria Based Content Analysis (CBCA; see Blandon-Gitlin, Pezdek, Lindsay, & Hagen, 2009; Steller & Kohnken, 1989) and Reality Monitoring (RM; Johnson & Raye, 1981; see Bogaard, Meijer, Vrij, Broers, & Merckelbach, 2014) to identify exaggerated symptoms after exposure to an experimental stressor. Evaluators who used these methods were better in discriminating between truth tellers and malingerers than evaluators who did not use these methods. However, the mere quantity of details in symptoms reports could not serve as robust indicators of veracity (Akehurst et al., 2017. This suggests that the richness of details in symptom reports, the main idea behind CBCA method, is not diagnostic of honesty.

One potentially promising avenue is a newly devised verbal lie detection method: The Verifiability Approach (Nahari, Vrij, & Fisher, 2012). The Verifiability Approach is based on two aspects of deceptive strategies. First, liars tend to provide statements that are rich in details, because they want to make a convincing impression and believe that detailed stories sound convincing. Second, liars tend to avoid mentioning details that could be checked by investigators. As a solution to these conflicting strategies, liars, compared with truth tellers, typically provide fewer details that can be verified and more details that cannot be verified (Nahari & Vrij, 2014; Nahari, Vrij, & Fisher, 2014a, b).

The Verifiability Approach is a promising lie detection approach, but so far, it has not been applied in the context of malingering. Research to date suggests that the efficacy of the Verifiablity Approach depends on the context in which it is used (Nahari, Leal,

Vrij, Warmelink, & Vernham, 2014; Vrij, Nahari, Isitt, & Leal, 2016). For example, in mock crimes scenarios, where an interviewer knows all the details of the 'crime', liars have difficulty in providing verifiable details. Liars find it difficult to demonstrate that they were at a different location than the crime scene during the time the crime occurred. In contrast, in insurance claim cases, someone could falsely claim to have lost his phone while running, but could then truthfully describe his run. This type of situation provides liars with more degrees of freedom to generate false verifiable details (Nahari, Leal, et al., 2014; Vrij et al., 2016). This might also explain why the Verifiability Approach was not an effective strategy for discriminating between true and false insurance claims (Nahari, Leal, et al., 2014). In the case of symptom malingering, similar problems might occur, such as the unknown ground truth and the option to incorporate genuine experiences or symptoms in the fabrication of lies.

Using an 'Information Protocol', several studies (Harvey, Vrij, Nahari, & Ludwig, 2017; Nahari, Vrij, & Fisher, 2014b; Vrij et al., 2016) have examined the effect of informing participants, that the details of their statements could be subsequently checked by the interviewer. Across studies, this warning has resulted in an increased number of verifiable details being reported by truth tellers but not by liars, strengthening the efficiency of the Verifiability Approach. As part of the Verifiability Approach, this warning has also facilitated discrimination between truths and lies in recent insurance claims study (Harvey et al., 2017; Vrij et al., 2016). Thus, the Information protocol instructions seem to motivate truth tellers to search their memory for additional verifiable details – something that is not possible for liars to do.

Our two studies are a first attempt to explore the usefulness of the Verifiability Approach to the detection of malingering. We asked participants to write a statement reporting real or fabricated common physical symptoms, such as a headache or stomach ache (Petrie, Faasse, Crichton, & Grey, 2014). In the first study, participants were given the task to write a symptom report, while in the second study, they were informed that their statements may be checked by a medical professional. We predicted that in both studies, truth tellers would provide significantly more verifiable details about their symptoms than malingerers, whereas malingerers would include more non-verifiable details in their statements than truth tellers (Hypothesis 1). We also predicted that the proportion of verifiable details (verifiable details/total details) would be higher for truth tellers than for malingerers (Hypothesis 2).

Study 1

Method

Participants

We conducted an online study that included 125 undergraduate psychology students. Participants were 17–38 years of age, with an average age of 20 years ($SD = 2.48$). The majority were women (86%).

From the total number of participants, 41 reported having real physical symptoms of different medical conditions (see Procedure), whereas 84 did not report any symptoms of physical ill-health. On the basis of these initial symptom reports, participants were allocated into two groups: truth tellers (with real symptoms) and malingerers (without symptoms).

Procedure

After participants signed up for the study, they were directed to an online link to start the survey in Qualtrics. After answering demographic questions, participants were asked to report any physical symptoms of ill-health they were experiencing ('Do you currently or did you in the last week suffer from any physical symptoms, such as a headache, stomach ache, fatigue etc.?'). Participants who answered in the affirmative were considered as 'truth tellers', whereas participants who responded negatively to the question were next instructed to malinger.

We presented the participants of both groups with 10 of the most frequent physical symptoms reported in the general population (Petrie et al., 2014). Participants also could add additional symptoms if these were not on the list (no new symptoms were added). Malingerers were instructed to select one of the listed symptoms and to write a statement about the target symptom as though they suffered from it. They were presented with the following instructions:

> Imagine that you suffer from this specific symptom and try to imagine all the details of experiencing that symptom. Consider that you did not attend your exam because of this symptom. Imagine we are the exam committee asking you to provide us with specific details of the day on which you experienced the symptom. Give us a description of your behavior during the day you 'had the symptom'. Your report should start with the morning in which you noticed the symptom and then proceed through the next hours until you went to bed.

Truth tellers received a similar instruction, except that they were asked to give a chronological account of the last day they suffered from their symptom of ill-health. Both groups wrote reports about their symptoms. No length nor time limitations were imposed. Table 1 shows the frequencies of selected symptoms for truth tellers and malingerers.

After truth tellers and malingerers had written their statements, we asked them to evaluate the difficulty of this task on 7-point Likert scale (1 = very easy; 7 = very difficult). They were then thanked for participation and rewarded with one research credit.

Table 1. Frequencies and percentage of selected symptoms in truth tellers and instructed malingerers in both studies.

	Study 1		Study 2	
Symptoms	Truth tellers *n* (%)	Malingerers *n* (%)	Truth tellers *n* (%)	Malingerers *n* (%)
Back or neck pain	13 (31.7)	10 (11.9)	12 (31.6)	8 (11.9)
Headache	10 (24.4)	35 (41.7)	9 (23.7)	23 (34.3)
Fatigue or loss of energy	8 (19.5)	19 (22.6)	6 (15.8)	15 (22.6)
Upset stomach or indigestion	5 (12.2)	5 (5.9)	5 (13.2)	7 (10.4)
Insomnia or sleeping problems	2 (4.9)	10 (11.9)	1 (2.6)	5 (7.5)
Congested or runny nose	1 (2.4)	2 (2.4)	0	1 (1.5)
Joint pain or stiffness	1 (2.4)	0	1 (2.6)	0
Cough	1 (2.4)	0	1 (2.6)	4 (6.0)
Muscle pain	0	3 (3.6)	0	1 (1.5)
Low blood pressure or circulation problems	0	0	0	2 (3.0)
Added symptoms				
Vertigo	0	0	0	1 (1.5)
Intestine pain	0	0	1 (2.6)	0
Knee pain	0	0	1 (2.6)	0
Sore throat	0	0	1 (2.6)	0
Total	41 (100)	84 (100)	38 (100)	67 (100)

Coding

All statements were coded by one coder, and the second coder scored a randomly selected 20% of all statements. Both coders were blind to the veracity of the statements. Following Nahari and Vrij (2014), all details were coded either as *verifiable* or *non-verifiable*. For a detail to be coded as verifiable, it had to meet one of the following criteria. The activities (1) were documented (appointment with a doctor, prescriptions, receipt, etc.) and, therefore, potentially checkable; (2) involved an action carried out together with (an) other identified person(s) rather than alone or with a stranger who could not easily be traced; (3) pertained to something that was witnessed by (an) other identified person(s); (4) were reported as being recorded (e.g. on CCTV) by the interviewee; (5) used technology (use of cash machine, bank cards, phone, tablet, and computer); or (6) could potentially be checked by blood analysis and medical tests (taking specific pills).

We coded for the presence of the following details, all derived from the RM literature (Johnson & Raye, 1981): Perceptual (i.e. information about what a person has seen, smelt, heard or felt); Spatial (i.e. information about spatial arrangement of objects or people); Temporal (i.e. information about the time when a behavior/action happened, an event happened or a sequence of events/behaviors happened), and descriptive (i.e. specific description of action, objects or symptoms) details. Every word describing a symptom ('headache', 'stomach ache', 'pain', 'fatigue'), emotional feeling ('I feel', 'anxiety', 'scared'), internal experience or state ('worried', 'decided', 'I wished/wanted', 'thirsty', 'tired'), or information about what a person saw, heard or tasted ('I saw red dots', 'noise', 'bitter'), was coded as a *perceptual* detail. *Spatial* codes included every detail about where an event happened ('at home', 'in the streets', 'at car'), or about spatial arrangements of people or objects ('upstairs/downstairs', 'down', 'up', 'in front'). *Temporal* details included information about the time in general ('at noon', 'midnight', 'day'), or about a specific time ('at 13 h'), or time sequences of the events ('before', 'after', 'during', 'the next day', 'previously'). We also coded descriptions of actions and objects. Every description of an action ('took an Aspirin 500 mg', 'called a doctor', 'talked to my friend'), symptom ('strong', 'sharp', 'coming in waves'), or object ('shiny') was coded as *descriptive* detail.

To examine the inter-rater reliabilities between coders intraclass correlation coefficients (ICC) were calculated. They were excellent for verifiable (ICC = .98) and non-verifiable details (ICC = .94), as well as for the total sum of details (ICC = .94). Regarding the separate categories of detail, except for spatial details (ICC = .63), the majority of ICC indicated almost perfect agreement (all ICC > .84; see supplemental Table 1). As we did not formulate specific hypotheses about the different detail categories, we will not discuss them in detail below. However, the number of details per category for the two groups can be found in the supplemental material.

Results

Difficulty of the task

To check whether truth tellers might have found the task less difficult than malingerers an independent *t*-test was conducted. However, truth tellers and malingerers reported similar difficulty levels, means being 4.10 ($SD = 1.39$) and 4.46 ($SD = 1.40$), respectively, $t\ (123) = 1.36$, $p = .18$).

Length of the statements

On average, participants produced 89.26 words per statement. Truth tellers provided significantly shorter statements ($M = 66.71$, $SD = 48.76$) than malingerers ($M = 100.27$, $SD = 83.52$), t (123) = 2.38, $p = .02$, Cohen's $d = 0.49$.

Number of verifiable and non-verifiable details

The difference between truth tellers ($M = 0.93$, $SD = 2.26$) and malingerers ($M = 0.45$, $SD = 1.61$) in the raw number of verifiable details reported was not significant, t (123) = 1.34, $p = .18$, Cohen's $d = 0.25$). However, truth tellers reported significantly less non-verifiable details ($M = 18.83$, $SD = 10.43$) than malingerers ($M = 28.29$, $SD = 21.32$), t (123) = 2.69, $p = .01$; Cohen's $d = 0.56$. These results partially support Hypothesis 1.

Proportions of verifiable details

Verifiable details were reported by 16.8% of participants, with 24.4% of truth tellers and 13.1% of malingerers reporting at least one verifiable detail, χ^2 (1, 125) = 2.51, $p = .11$. Of the total number of provided details, verifiable information comprised 2.4%.

As in previous studies on verifiability, and as another way to control for statement length, we calculated the proportions of verifiable details: the ratio between the total number of checkable details and overall number of details (verifiable details/total of details). Truth tellers had significantly higher proportions ($M = 0.05$, $SD = 0.12$) than malingerers ($M = 0.01$, $SD = 0.03$), t (123) = 2.43, $p = .01$, Cohen's $d = 0.46$. This result supports Hypothesis 2.

Controlling for the length of the statements, a Analysis of Covariance (ANCOVA) showed that there was a significant effect of group (truth tellers vs. malingerers) on the number of verifiable details, F (1, 123) = 4.72, $p = .03$, $\eta^2 = .03$, and on proportion of verifiable details, F (1, 123) = 5.70, $p = .02$, $\eta^2 = .04$. However, the effect of group on the number of non-verifiable details, F (1,123) = 1.75, $p = .19$, $\eta^2 = .001$, was non-significant.

Study 2

The results of Study 1 revealed that malingerers generated longer statements that were richer in non-verifiable details. Truth tellers produced higher proportions of verifiable details than malingerers – although the proportion of verifiable details produced was low in both conditions. Thus, our results are in line with previous studies on the Verifiability Approach (Nahari et al., 2014a, b; Nahari & Vrij, 2014) and also suggest that low verifiability reports might be a feature of people who malinger suffering from physical symptoms. In Study 2, we tested whether differences in verifiability between truth tellers and liars would become more pronounced when participants are given additional instructions about verifiable details, as was found in previous studies (see Harvey et al., 2017; Nahari et al., 2014b; Vrij et al., 2016).

Method

Participants

One hundred and five undergraduate psychology students were recruited. Participants' age ranged from 18 to 26 years, with an average of 20 years ($SD = 1.48$). The majority were women (74%).

From the total number of participants, 38 reported having physical symptoms, while 67 denied suffering from any physical condition. Therefore, as in the previous study, participants were allocated to two groups: truth tellers (with real symptoms) and malingerers (fabricating an account of symptoms).

Procedure

Study 2 followed a similar procedure as Study 1. Participants had an option to choose one of ten symptoms from the list or to add a new one (see Table 1). However, unlike our first study, before starting with writing the statements about their symptoms, the participants were given an 'Information Protocol', which informed them that the details they provide may be checked (as in Harvey et al., 2017). The Information Protocol explicitly outlined what kind of information is considered a verifiable detail:

> We know from research that liars prefer to avoid providing details that can be verified whereas truth tellers prefer to provide verifiable details. Therefore, we are going to give your statement to medical professionals and ask them to decide if your statement is truthful, based on the extent to which the details you provide can be verified. Verifiable details are activities that can be documented and therefore verifiable (phone calls, doctor appointment, prescriptions etc., or activities that could be checked through blood analysis and medical documentation), carried out with another person (that can be identified), witnessed by another person (identifiable person), or recorded by CCTV cameras. Details that do not meet any of these criteria are considered to be unverifiable.

After writing the statement, using 5-point Likert scales (1 = completely unmotivated; 5 = strongly motivated), we asked participants how motivated they had been to write down a convincing statement and to what extent they thought to have succeeded in this. Participants were also asked to report how strongly they believed that the details they provided would be checked by researchers on 5-point Likert scale (1 = definitely no; 5 = definitely yes).

We asked malingerers whether they had been using bluffing as a strategy in writing their statements. Bluffing was defined as providing false verifiable details. The possible answers were 'Yes', 'Maybe', and 'No'. Perhaps the easiest way of bluffing is to confabulate about a person who can confirm the story (Culhane, Hosch, & Kehn, 2008). In this context, this might be a person who the individual claims has witnessed them experiencing the symptoms or who they have told about their symptoms. To investigate whether malingerers referred to false witnesses, we coded every statement in which a close person (parents, girlfriend/boyfriend, flat mate) was mentioned. After finishing the task, all participants were thanked for participating and rewarded with one research credit.

Coding

As in Study 1, all statements were coded by one coder, while the second coder scored a randomly selected 20% of all statements. Both coders were blind to the veracity of statements. The ICC between coders was excellent for verifiable details (ICC = .94), non-verifiable details (ICC = .97), and for the total sum of details (ICC = .98). The ICC for other categories of details also indicated good agreement (all ICC > .80; see supplemental Table 1).

Results

Motivation, estimation of success, difficulty of the task, and belief that statements will be checked

Truth tellers reported ($M = 3.53$, $SD = 0.79$) a comparable level of motivation as malingerers ($M = 3.43$, $SD = 0.80$), t (103) = 0.57, $p = .57$. Also, truth tellers ($M = 3.53$ $SD = 0.76$) did not differ from malingerers (M = 3.31 ($SD = 0.96$) in how they rated their success, t (103) = 1.17, $p = .24$. As in Study 1, difficulty of the task was rated on a 7-point Likert scale. Truth tellers ($M = 3.76$, $SD = 1.28$) and malingerers ($M = 3.42$, $SD = 1.29$) did not differ with respect to their difficulty ratings, t (103) = 1.32, $p = .19$.

Both truth tellers ($M = 3.50$, $SD = 0.89$) and malingerers ($M = 3.15$, $SD = 0.96$) considered the possibility that the veracity of their statements would be checked and the groups did not significantly differ in that respect, t (103) = 1.85, $p = .07$.

Length of the statements

On average, participants produced 142.47 words per statement. The length of the statements was not significantly different for truth tellers ($M = 152.63$, $SD = 111.16$) and malingerers ($M = 136.70$, $SD = 85.29$), t (103) = 0.82, $p = .41$.

We compared the results with those of Study 1. The additional instruction in Study 2 affected truth tellers so that they wrote significantly longer statements than in the Study 1, t (77) = 4.50, $p = .001$, Cohen's $d = 1.02$. A similar pattern emerged for malingerers, t (149) = 2.64, $p = .01$, Cohen's $d = 0.04$.

Number of verifiable and non-verifiable details

Truth tellers ($M = 8.26$, $SD = 15.31$) and malingerers ($M = 6.66$, $SD = 9.02$) did not differ in number of generated verifiable details, t (103) = 0.68, $p = .50$.[1] The group difference in number of non-verifiable details was not significant either, t (103) = 0.63, $p = .53$, with truth tellers ($M = 48.92$, $SD = 32.76$) and malingerers ($M = 45.03$, $SD = 29.44$) producing a comparable number of such details.

Proportions of verifiable details

The number of participants providing verifiable details was much higher than in Study 1 (57.1% vs. 16.8%). In fact, 50% of truth tellers and 63.4% of malingerers reporting at least one verifiable detail, χ^2 (1, 105) = 1.24, $p = .26$. Verifiable details formed 13.1% (2.4% in Study 1) of the overall number of details in all statements. As in Study 1, we calculated the proportion of provided information that could be checked. The average proportion of verifiable details (verifiable details/total of details) was.12 ($SD = 0.15$) for truth tellers, and.13 ($SD = 0.12$) for malingerers; this difference was not significant, t (103) = 0.30, $p = .77$.

Bluffing as a strategy

From the total number of malingerers, 17 participants (25.4%) reported that they 'maybe' had used bluffing, while 19 malingerers (28.4%) admitted providing false verifiable details. From a total of 41 malingerers who provided (false) verifiable details, 63.4% mentioned a close person who could confirm their story. On the other hand, 57.9% of truth tellers also provided information about family members or close people who could confirm their

story. The groups did not differ significantly in the frequency with which they mentioned close people, $\chi(1) = 1.03$, $p = .31$.

We checked whether malingerers' belief that their statements would be checked correlated with their bluffing strategies using Spearman's rho correlation coefficient. However, the relation was not significant, rs (105) = .09, $p = .35$. Similarly, the correlation between malingerers' belief and the number of verifiable details remained non-significant, rs (105) = .01, $p = .92$.

Discussion

We examined whether the Verifiability Approach (Nahari & Vrij, 2014) could differentiate between people who are suffering from common physical symptoms and those who are malingering such symptoms. Our main findings in Study 1 and Study 2 are presented in Table 2. Truth tellers included a higher proportion of verifiable details despite generating shorter statements than malingerers. This finding was also evident when we looked at the number of verifiable details, while controlling for the length of the statement. However, this effect only emerged in Study 1, where participants were not provided with an instruction to include verifiable details. In Study 1, the overall production of verifiable details remained low (2% of total details). When the pertinent instruction was provided (Study 2), the overall production of verifiable details increased (13%), and no difference between truth tellers and malingerers in non-verifiable details emerged. This pattern appears to indicate that the instruction weakened the effect of the Verifiability Approach, which opposes previous studies where the use of such an instruction enhanced the differences between truthful and deceptive accounts. This discrepancy suggests that detecting malingerers using the Verifiability Approach may be more effective if the patients are required to provide their reports spontaneously – rather than warning them that their reports will be examined for verifiable details. However, it might come with a risk that patients will not spontaneously include verifiable details in their reports.

We believe that the discrepancy in findings between our two studies is related to different levels of difficulty to incorporate false verifable details (bluffing) into an account in this specific setting. The most popular way of bluffing observed in the current research was claiming that another person could confirm the account, most frequently a person closely related to the malingerer (e.g. parents, boyfriend, flatmate) (see also Culhane et al., 2008). Actually, mentioning close people as witnesses is a clever strategy because the majority of people are willing to corroborate a statement of a close friend or relative in order to help that person (Hosch, Culhane, Tubb, & Granillo, 2011). It may well be the case that this strategy works better in a malingering context than in a criminal/insurance

Table 2. Summary of main findings in Study 1 and Study 2.

Results	Length of the statements	Difficulty of the task	Number of verifiable details	Number of non-verifiable details	Proportion of verifiable details
Study 1	>*	~	~	>**	<*
Study 2	~	~	~	~	~

Notes: >, malingerers having higher scores; <, malingerers having lower scores; ~, no significant differences between groups.
* $p < .05$.
** $p < .01$.

setting. For example, a criminal or a fraudulent claimant needs to inform a false witness beforehand to pretend that s/he was with or spoke with the criminal/claimant, which means that the friend will be aware of the falsehood of the statement. Consistent with this, Vrij et al. (2016) found that only 17% of liars reported discussing the incident with the person they mentioned in their statements, compared with 77% of truth tellers. In a malingering situation, even if a friend denied noticing a malingerer's symptom (e.g. headache), a symptom report would not necessarily be exposed as a form of malingering, because people often do not mention to others that they suffer from a particular symptom. Furthermore, in the context of symptoms it is easy to actually fool friends because common physical symptoms are often not clearly visible to others. Consistent with this is the result showing that malingerers did not differ from truth tellers in ratings of the difficulty of writing the statements about their symptoms. This may indicate that providing false potentially checkable information did not pose a big challenge for malingerers.

An interesting point concerns the length of the statements in both studies. While truth tellers spontaneously wrote significantly shorter statements than malingerers in Study 1, this difference disappeared in Study 2 when we provided the Information Protocol. It is plausible that malingerers, even when not instructed, tend to provide long, non-verifiable statements in order to conceal the lack of truthful information (e.g. Vrij et al., 2016). In contrast, truth tellers' parsimony in details might be a result of their belief that their honesty will 'shine through', commonly referred to as the 'transparency effect' (Savitsky & Gilovich, 2003). The DSM-5 assumes that malingerers are uncooperative and reluctant to talk about their symptoms (Rogers, 2008). However, the finding that malingerers spontaneously write longer statements contradicts these assumptions and warrants further study. On the other hand, when provided with additional instructions, truth tellers wrote longer statements which were comparable in length to those of malingerers. Thus, with these instructions, the difference between groups was no longer evident. Similar to these findings are the results of previous insurance claims studies in which researchers suggested that providing a detailed model statement about an unrelated topic would elicit more verbal clues of deception, such as longer and more detailed reports among truth tellers than among liars. However, the results showed that, even with the model statement, liars provided statements that were comparable in length with those of truth tellers (Leal, Vrij, Warmelink, Vernham, & Fisher, 2015).

The main disadvantage of the Verifiability Approach in a medico-legal context seems to be the low spontaneous production rate for verifiable details in genuine patients' report. The percentage of truth tellers who reported verifiable details in Study 1 was around 17%, while it was 57% in Study 2 following instructions to provide such details. This suggests that the majority of genuine patients experiencing physical symptoms of ill-health do not spontaneously provide checkable details, or simply might not have any checkable details to report about. In the context of symptoms, the majority of information provided by patients is subjective, and mostly concentrated on their internal state, rather than on external or visible condition. Thus, the situations in which professionals have the option to verify persons' symptoms complaints via cameras or witnesses may be extremely rare (Resnick et al., 2008). Additionally, people differ in the way they perceive their symptoms and behave when experiencing them (see Kolk, Hanewald, Schagen, & van Wijk, 2003; see also van Wijk, Huisman, & Kolk,1999). While one person immediately calls a doctor or goes to the pharmacy, another person may just keep up with daily activities,

without complaining to anybody. Both persons are truth tellers, but the second one would not have any verifiable details to report concerning their physical symptoms of ill-health. The additional concern is that a malingerer could also go to the doctor or pharmacy just to prepare a verifiable report. Unfortunately, in those cases, the Verifiability Approach would not be able to assist the detection of the false (verifiable) report.

One important limitation of the current study is that we relied on self-reports for the selection of truth tellers and malingerers, without any independent check as to whether they actually suffered from the reported symptoms or not. However, the incidence of selected symptoms amongst truth tellers was consistent with previous research about symptoms most frequently experienced by non-malingerers (see Dandachi-FitzGerald & Merckelbach, 2013; Petrie et al., 2014).

Future research

Despite limitations of the Verifiability Approach, we do not exclude the possibility that, with certain adjustments, it may be possible to extend the Verifiability Approach into an efficient tool for the detection of malingered symptoms. The adjustments should focus on the consequences of including false verifiable details, because in reality people are confronted with losses if it is established that they malingered. However, such a warning could also influence truth tellers, who then might realize that they could be seen as malingerers. Furthermore, our results seem to indicate that when the length of the statement is controlled for, the differences in verifiable details between groups become more pronounced. Therefore, introducing certain limitations to the length of symptom reports might help in differentiating between genuine and fabricated statements.

Conclusion

Our results suggest that the Verifiability Approach is not as effective in a malingering setting as in previously studied settings. However, using this method may be informative, especially in a domain in which self-report is inevitable, such as a medico-legal context. Therefore, future studies are needed in order to determine whether certain versions of the Verifiability Approach might be useful in a medico-legal context in which malingering is an issue.

Note

1. The main analysis for the number of verifiable details was run again with the belief of participants that their statements would be checked as a covariate. The covariate did not change the result, $F(1, 122) = 0.34$, $p = .56$.

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