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## Presenting the consequences of feigning: Does it diminish symptom overendorsement? An analog study

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### ABSTRACT

Feigning causes personal and societal consequences, in both civil and criminal context. We investigated whether presenting the consequences of feigning can diminish symptom endorsement in feigned Posttraumatic Stress Disorder (PTSD). We randomly allocated non-native English speaking undergraduates ( $N=145$ ) to five conditions: 1) Truth tellers ( $n=31$ ), 2) Civil context feigners ( $n=27$ ), 3) Civil context warned feigners ( $n=26$ ), 4) Criminal context feigners ( $n=29$ ), and 5) Criminal context warned feigners ( $n=32$ ). All feigning groups received a vignette depicting a situation in which claiming PTSD would be beneficial. One vignette referred to the personal injury claim, whereas the second was about the aggravated assault charges. Additionally, one feigning group from each setting received information about the consequences of feigning (i.e., warned feigners). After receiving the instructions, all participants were administered the Self-Report Symptom Inventory (SRSI), a measure of symptom endorsement. Truth tellers endorsed fewer symptoms than all feigning groups, which mostly did not differ. Yet, criminal warned feigners (59%) were significantly less frequently detected on the SRSI as overreporters than other feigning groups (86.2%–89%). Hence, emphasizing the negative consequences of overreporting may diminish symptom endorsement, but only in high-stake situations. The implications and limitations (e.g., online measure administration) of this work are discussed.



### KEYWORDS


Civil context; criminal context; feigning; PTSD; SRSI; Symptom overreporting

When people intentionally overreport symptoms, this is often referred to as malingering. This condition presupposes the presence of external incentives driving this behavior (DSM-5; American Psychiatric Association [APA], 2013). The most frequent benefits people aim to achieve in such cases are monetary compensation, pension, avoiding prison, or obtaining drugs (Dandachi-FitzGerald et al., 2020). Yet, sometimes, people intentionally fabricate symptoms due to internal reasons such as taking on a sick role, in which case this behavior is considered a (factitious) disorder. When the type of incentive behind symptom fabrication is not clear, the term *feigning* is preferred (Rogers & Bender, 2018).

One manifestation of feigning behavior is to overendorse items on symptom inventories. Hence, the most reliable way to detect feigning is to employ symptom validity tests (SVTs) that check for the presence of symptom overreporting tendencies (see Bianchini et al., 2001). The type of SVTs that relies on the tendency to exaggerate self-reported symptoms are so-called self-report symptom validity tests (SRVTs). The rationale behind SRVTs is that people who feign symptoms tend to endorse even items describing implausible complaints. However, it must be acknowledged that many factors, besides feigning, can lead to symptom

overreporting, such as personality traits (e.g., alexithymia, Merckelbach et al., 2018), poor mental health (e.g., dissociation; Merckelbach et al., 2017; psychosis, Van Der Heide et al., 2020), and cognitive impairment (Slick et al., 1999). One example of SRVT is the Self-Report Symptom Inventory (SRSI; Merten et al., 2016). The SRSI includes two main scales: one scale includes only genuine, plausible symptoms, whereas the other scale consists of pseudosymptoms rarely endorsed by genuine patients. The main scales include five subscales that tap into the following type of complaints: Genuine (i) cognitive issues, (ii) depression, (iii) pain, (iv) nonspecific somatic complaints, and (v) posttraumatic stress disorder/anxiety symptoms; Pseudo (i) cognitive, (ii) sensory, (iii) motoric symptoms, (iv) pain, and (v) anxiety/posttraumatic stress disorder/depression symptoms. Genuine patients endorse mostly genuine symptoms, with only a few pseudosymptoms, whereas feigners tend to overendorse items pertaining to both the genuine complaints and pseudosymptoms (Merten et al., 2019; 2021). The performance of SRSI in the detection of feigning has so far been tested in a variety of contexts (e.g., forensic patients, psychosomatic inpatients, criminal offenders, experimental malingerers etc., Kaminski et al., 2020; Van Helvoort et al., 2019;

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Merten et al., 2021; Merten et al., 2016) and types of symptoms (depression, Stevens et al., 2018; anxiety and pain, Akca, et al., 2020; Boskovic, Merckelbach, et al., 2020; and posttraumatic stress disorder, Boskovic, Dibbets, et al., 2019; Boskovic, Hope, et al., 2019; Boskovic et al., 2020). Overall, the psychometric characteristics of SRSI are satisfactory (Merten et al., 2019), indicating high sensitivity and low false positive rates (for a review, see Merten et al., 2021).

Recently, concerted efforts within the symptom validity assessment field have been put into establishing the utility of available measures to detect feigning, as well as on creating new ones. Yet, research into ways to reduce feigning tendencies is scarce. Some researchers have focused on warning the evaluatees about upcoming SVTs (e.g., Etherton & Axelrod, 2013), others have looked into providing corrective feedback post-assessment (see Merckelbach et al., 2015), and some tested whether cost-benefit overview of performing well versus investing little effort during the neuropsychological assessment would diminish feigning (Horner et al., 2017, but see also Niesten et al., 2018). Still, the majority of research on this topic included some form of moral reminders in order to diminish feigning (Merckelbach & Collaris, 2012; Kobelt-Pönicke et al., 2020; but see Niesten et al., 2017). On the whole, such attempts to reduce symptom overreporting have produced mixed results and some scholars have speculated that they may result in feigning behavior that is more difficult to detect (Youngjohn et al., 1999). Still, the few feigning prevention/reduction studies undertaken so far are mostly based on the cognitive dissonance framework, which implies that when people are somehow confronted with the immorality of their actions, they will lower feigning tendencies so as to maintain a positive self-image.

Possibly the most in-depth investigation of moral priming as an intervention to reduce feigning was conducted by Niesten et al. (2017). Niesten and colleagues conducted three studies testing whether employing moral reminders (moral primes, moral contracts, and moral paradox) prior to administering the SVT decreases the symptom overendorsement in patients seeking treatment for attention deficit hyperactivity disorder (ADHD) and in the general public. Although these researchers used both the simulation design as well as more ecologically valid paradigms to implicitly motivate participants to feign, the results of all three studies, as the majority of previous research on this topic, were disappointing. The authors listed some of the potential reasons for the lack of desired outcomes such as moral licensing (a theory that postulates that one's previous good behavior provides permission for immoral acts in future, see Blanken et al., 2015; Cascio & Plant, 2015), or even individual differences in sensitivity to morality (i.e., moral identity, Mulder & Aquino, 2013; Niesten et al., 2017).

Another possible explanation for the failure of previous attempts to decrease symptom overendorsement might be their general reliance on moral priming effects. A meta-analysis showed that morality-related constructs, such as moral licensing, are actually weak, with much larger effects in published, compared with unpublished, studies (Blanken et al., 2015). Given the subtle effects of moral primes, a better way to reduce feigning might be to stress the real-life

consequences of feigning, hence, introducing a threat. Research to date has documented the aversive consequences of feigning, involving both micro (the feigners and the genuine patients; e.g., van der Heide et al., 2020) and macro (health care and legal system; e.g., Aronoff et al., 2007) level impact. For example, additional fraud charges or enhanced sentences for detected feigners (Brown & Pileggi-Valleen, 2021), and lack of funds for genuine patients due to monetary aid given to feigners (e.g., Kitchen, 2003). Recently, it was also shown that feigners not only financially jeopardize genuine patients but that feigners admitted to inpatient clinics often physically assault genuine patients (Costopoulos et al., 2021). Further, including feigners in studies on the provision of treatment and its efficiency jeopardizes the reliability of outcomes (Anestis et al., 2015; McGrath et al., 2010). Also, individuals who do not disclose feigning to those close to them, might also severely damage relationships with others once discovered as feigners. As previous research showed that feigning behavior, in its prevalence (Ardolf et al., 2007; see also Young, 2015) and in its quality (see Merckelbach et al., 2009), differs depending on the context, these consequences could have different importance depending on the setting in which feigning occurs (personal injury vs. criminal setting). Therefore, a question arises whether presenting actual consequences of feigning on both personal and systemic levels, rather than moral reminders, may decrease symptom overendorsement in the civil and criminal contexts. To test this in both settings requires a diagnosis that is equally attractive in either of them, which is, for instance, Posttraumatic Stress Disorder (PTSD).

PTSD is a diagnosis that has often been studied in the context of feigning (Ali et al., 2015, Knoll & Resnick, 2006; Young, 2017). The DSM-5 diagnosis of PTSD involves eight criteria, ranging from criterion A (trauma exposure) to criterion H (exclusion of other causes). Symptoms of PTSD include reexperience of the traumatic event (e.g., intrusive thoughts, nightmares), avoidance of triggers, negative cognition and emotions, and enhanced arousal (DSM-5, APA, 2013). PTSD is an appealing diagnosis to feign as it can lead to various benefits in both civil (e.g., Gurriel & Fremouw, 2003, Lees-Haley, 1997) and criminal context (e.g., Berger et al., 2012; Rassin et al., 2018). Still, the assessment of PTSD symptoms completely relies on *self-report*, hence, it is not surprising that feigning of PTSD occurs up to an estimated 50% of reported complaints among veterans seeking compensation (Freeman et al., 2008). Due to such a high prevalence of feigned PTSD, it is of key importance to test whether it is possible to discourage people from engaging in feigning.

In order to do so, in this experimental simulation study, we randomly allocated our undergraduate students to one of five conditions: (i) honest responders (truth tellers), (ii) feigners in civil context (civil feigners), (iii) warned feigners in civil context (warned civil feigners), (iv) feigners in criminal context (criminal feigners), and (v) warned feigners in criminal context (warned criminal feigners). Prior to the group allocation, all participants needed to fill out the Impact of Event Scale (IES), so as to check potential PTSD-related symptoms in our sample. Then, all four feigning

groups received a vignette about a person who needs to feign PTSD symptoms. However, one vignette pertained to a personal injury case, whereas the other included a criminal trial for aggravated assault. Two feigning groups (within the civil and criminal condition) received an additional text describing the consequences of feigning (legal, societal, treatment, and personal). The goal was to compare the symptom endorsement on the SRSI between truth tellers, instructed feigners, and instructed feigners who received additional warning information (i.e., warned feigners). We anticipated that truth tellers would have significantly lower scores on all SRSI scales than both feigning groups, regardless of the context. We also anticipated that warned feigners would lower their scores significantly compared with (unwarned) feigners.

## Method

### Participants

The results of the  $G^*$ power analyses indicated a sample of 125 participants (effect size  $f^2(V) = .06$ ; alpha set to .05, beta set to .80). Originally, we recruited 176 participants, as we could not predict how many subjects would complete the study, or pass the attention checks. From the total sample, 21 participants did not complete the study, and 10 participants failed the attention checks. Hence, the final sample consisted of 145 participants, 81% female, 17% male, and two participants who declared as non-binary. All participants were bachelor students, with half of them attending the first year of bachelor studies (48%). The most common nationalities were Dutch (44%), German (10%), and Italian (5%; for the complete overview see Appendix). The average age of participants was 21 years ( $M = 20.95$ ,  $SD = 2.30$ ; range 18–30). The self-reported English proficiency, measured on a 5-point scale, was high ( $M = 4.30$ ,  $SD = .63$ ; range 3–5), which is not surprising considering that our participants are attending their studies in English. On average, participants reported relatively high distress as measured by IES (see below),  $M = 26.30$ ,  $SD = 17.30$ . All participants received research credits for their participation.

We checked whether the five groups differed with regard to age or English proficiency and our results indicated no significant differences,  $F(4, 144) = 1.68$ ,  $p = .158$ , and  $F(4, 144) = 1.08$ ,  $p = .367$ , respectively. Further, the groups did not differ in their self-report distress on IES,  $F(1, 144) = 1.40$ ,  $p = .238$ . See Table 1 for descriptive statistics.

**Table 1.** Means and standard deviation on age and English proficiency across all five conditions.

	<i>N</i>	Age <i>M</i> ( <i>SD</i> )	English proficiency <i>M</i> ( <i>SD</i> )	IES <i>M</i> ( <i>SD</i> )
Truth tellers	31	21.26 (3.20)	4.35 (.61)	27.80 (17.71)
Civil context				
Feigners	27	20.81 (2.43)	4.37 (.63)	28.30 (14.94)
Warned feigners	26	20.73 (1.43)	4.46 (.65)	31.03 (20.02)
Criminal context				
Feigners	29	20.38 (1.63)	4.07 (.65)	21.51 (15.89)
Warned feigners	32	21.47 (2.17)	4.22 (.61)	23.62 (17.19)

The groups did not significantly differ in age, English proficiency, nor IES scores.

## Measures

*Impact of Event Scale* (IES; Horowitz et al., 1979). This 15-item scale assesses reactions to aversive events. The responses are given using 4-point Likert scale (anchors: 0 = Not at all; Rarely: 1; Sometimes = 3; and Often = 5) and the total score is calculated by summing the scores on all items (range 0–75, with a suggested cutoff score indicating high distress of 26). Participants were asked to report about their feelings toward any stressful event they may have experienced during the last week (following the official instructions included in the measure). A typical item is “I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came to my mind.”. The *Cronbach’s alpha* of IES in the current study was .91, which fits the already established psychometric properties of IES (Sundin & Horowitz, 2002).

*Self-Report Symptom Inventory*<sup>1</sup> (SRSI; Merten et al., 2016). The SRSI is a measure of symptom overreporting, consisting of 107 items, to which the response format is True/False. A hundred items are assigned to two superordinate scales: One that includes genuine, plausible symptoms (e.g., depression, PTSD, anxiety, pain; *Cronbach’s alpha* = .96) and one that pertains to pseudosymptoms (*Cronbach’s alpha* = .96). The main score is calculated using the sum of the total number of endorsed genuine and pseudosymptoms, separately (ranges 0–50). The rest of the items serve as attention (2 items) and consistency checks (5 items). To identify symptom overreporting, Merten et al. (2016) recommended a cutoff of 9 pseudosymptoms. In the current study, at this cut point, sensitivity was .80 and specificity was .91, while the Area Under the Curve (AUC) was .91, when all feigning groups were collapsed ( $n = 114$ ) and compared against truth tellers ( $n = 31$ ). For this study, we added two additional attention checks (“To this item respond with “True”.”), based on which we excluded 10 participants who did not respond accordingly.

## Procedure

The data for this study were collected from February until May 2021. The study was conducted online using Qualtrics and a university platform for students recruitment (SONA). After clicking on the link, participants were asked to provide consent, and then were administered the demographic questions (age, gender, nationality) and the IES. After filling out those questions, students were randomly assigned to one of possible five conditions: (1) Truth tellers (2) Civil context feigners; (3) Civil context warned feigners; (4) Criminal context feigners; and (5) Criminal context warned feigners. Participants in the truth-telling condition were told to respond honestly during the study, whereas the four manipulation conditions were given a vignette in order to help them to get into the role of a feigner. In the civil context, participants were asked to imagine being in a (harmless) car crash and afterwards (falsely) claiming PTSD to the insurance company in order to obtain compensation. In the

<sup>1</sup>The rights to use the measure were given by the first author via personal communication (the date is 4th of June 2021).



criminal setting, participants received instructions to imagine being a perpetrator of aggravated assault who is in court and was advised by their attorney to claim PTSD in order to lower the punishment. In the instructions for warned feigners in both contexts, we also added the text listing potential consequences of feigning and of potentially being detected as a feigner. Specifically, we presented information about potential 1) legal consequences (being charged with fraud), (2) the negative impact on genuine patients (taking monetary help aimed for genuine patients or taking spots in the treatment clinics), (3) potential obstruction of treatment evaluation, and (4) personal consequences, such as loss of close relationships (see Appendix for more details). At the end, participants received so-called exit questions regarding their motivation, difficulty of the task, clarity of questions, and clarity of the task (measured on a 5-point scale). Warned feigners were also asked to report whether they think presenting the consequences had any impact on them and if so, which consequence was the most important to them. This study was approved by the standing ethical committee of Erasmus University Rotterdam, the Netherlands. The data and the outputs are available at Open Science Framework platform (<https://osf.io/p6tm3/>).

### Statistical analysis

Our data were analyzed using the Multivariate Analysis of Variance (MANOVA), *t*-tests and Bonferroni post-hoc tests.

Partial eta squared ( $\eta_p^2$ ) and *Cohen's ds* were used for the effect size.

## Results

### Motivation, difficulty, clarity

Overall, participants reported moderate motivation ( $M = 3.52$ ,  $SD = .78$ ) and moderate difficulty of the task ( $M = 2.38$ ;  $SD = 1.05$ ). The clarity of questions ( $M = 4.36$ ,  $SD = .83$ ) and of the task itself ( $M = 4.26$ ,  $SD = .90$ ) was rated as high.

Significant group differences were found for difficulty ( $F(4, 144) = 6.07$ ,  $p < .001$ ,  $\eta_p^2 = .15$ ) and clarity of the task ( $F(4, 144) = 4.20$ ,  $p = .003$ ,  $\eta_p^2 = .10$ ). Difficulty of the task was rated as significantly lower by truth tellers than by the civil warned feigners ( $p = .007$ ), criminal context feigners ( $p < .001$ ), and by criminal warned feigners ( $p = .005$ ). The feigning groups did not mutually differ significantly ( $p > .554$ ). Also, truth tellers reported significantly higher clarity of the task than civil feigners ( $p = .008$ ), civil warned feigners ( $p = .046$ ), and criminal warned feigners ( $p = .008$ ), whereas the feigning groups did not differ ( $ps = 1.00$ ). For means and standard deviations, see Table 2.

### Group differences on SRSI scales: Genuine symptoms and pseudosymptoms scores

Table 3 summarizes the SRSI scores of the five groups. There was a significant difference between groups with

**Table 2.** Means and standard deviation on motivation, difficulty of task, clarity of questions, and clarity of task across all five conditions.

	<i>N</i>	Motivation <i>M</i> ( <i>SD</i> )	Difficulty of task <sup>a</sup> <i>M</i> ( <i>SD</i> )	Clarity of questions <sup>a</sup> <i>M</i> ( <i>SD</i> )	Clarity of task <i>M</i> ( <i>SD</i> )
Truth tellers	31	3.74 (.73)	1.68 (.79)	4.39 (.71)	4.77 (.42)
Civil context					
Feigners	27	3.44 (.80)	2.30 (.99)	4.33 (1.07)	4.00 (1.27)
Warned feigners	26	3.54 (.81)	2.58 (1.06)	4.27 (.67)	4.12 (.91)
Criminal context					
Feigners	29	3.48 (.69)	2.83 (1.04)	4.52 (.57)	4.34 (.67)
Warned feigners	32	3.38 (.87)	2.56 (1.01)	4.28 (1.02)	4.03 (.86)

<sup>a</sup>Both clarity and difficulty of the task were rated significantly different by truth tellers and four groups of feigners ( $ps < .003$ ), whereas feigning groups did not mutually differ ( $ps > .554$ ).

**Table 3.** Means and standard deviation for the main SRSI scales and subscales among all groups.

<i>N</i>	Truth tellers 31 <i>M</i> ( <i>SD</i> )	Civil context		Criminal context	
		Feigners 27 <i>M</i> ( <i>SD</i> )	Warned feigners 26 <i>M</i> ( <i>SD</i> )	Feigners 29 <i>M</i> ( <i>SD</i> )	Warned feigners 32 <i>M</i> ( <i>SD</i> )
Genuine symptoms					
Cognitive	2.87(2.48)	6.93(3.04)	7.42(1.77)	6.17(2.61)	6.18(3.35)
Depression	3.32(2.53)	8.48(1.91)	8.23(1.53)	7.31(2.35)	6.87(2.69)
Pain	1.74(2.26)	4.55(3.77)	5.31(3.24)	5.14(3.63)	3.75(3.12)
NS Somatic	5.74(3.00)	9.15(1.68)	9.69(.62)	8.82(2.22)	8.43(2.50)
PTSD/Anx.	2.61(2.48)	8.85(2.38)	9.00(1.52)	8.62(2.75)	8.12(2.41)
<b>Total</b>	<b>16.29(9.55)</b>	<b>38.00(9.71)</b>	<b>39.65(6.05)</b>	<b>36.07(11.01)</b>	<b>33.37(11.21)</b>
Pseudosymptoms					
Cognitive	1.19(1.49)	5.18(3.35)	4.46(2.53)	4.21(2.59)	3.56(2.74)
Motoric	.35(.70)	3.48(3.76)	3.23(3.09)	2.51(2.78)	2.00(2.70)
Sensory	.93(1.43)	4.11(3.33)	3.84(2.68)	2.82(2.22)	2.75(2.64)
Pain	.51(.85)	3.18(3.77)	3.65(3.12)	2.44(3.15)	2.09(2.90)
An/PTSD/De	1.03(1.11)	7.59(2.73)	7.07(2.31)	6.62(2.66)	5.22(3.07)
<b>Total</b>	<b>4.03(3.98)</b>	<b>23.56(14.77)</b>	<b>22.26(12.19)</b>	<b>18.62(10.89)</b>	<b>15.62(12.30)</b>

NS somatic: nonspecific somatic; PTSD/An: PTSD/anxiety; AN/PTSD/Dep: anxiety/PTSD/depression.

regard to genuine symptom scale,  $F(4, 140) = 27.91, p < .001, \eta_p^2 = .45$ . Post-hoc tests indicated that the truth-telling group endorsed significantly fewer symptoms than all four feigning groups ( $ps < .001$ ), whereas the feigning groups exhibited similar levels of symptom endorsement ( $ps > .163$ ).

For pseudosymptoms scores, the overall difference was also significant,  $F(4, 140) = 14.06, p < .001, \eta_p^2 = .29$ . Again, the difference was carried by truth tellers having lower number of endorsed symptoms than all four feigning groups ( $ps < .001$ ), whereas the feigning groups did not differ significantly ( $ps > .081$ ).

There was a significant effect of group on *all* SRSI subscales,  $\lambda = .32, F(40, 498.59) = 4.37, p < .001, \eta_p^2 = .25$ . The univariate tests indicated significant differences between groups on all of the ten subscales ( $F_s > 5.04, ps < .001, \eta_p^2 > .12$ ). As the results regarding all the subscales are not closely related to our research questions, we will only focus on the PTSD-related subscale here, and the rest can be found in the [Supplemental file](#). Regarding the genuine symptoms, the PTSD/Anxiety-related items were the most rarely endorsed by truth tellers compared with feigners ( $ps < .001$ ), and the four feigning groups obtained very similar scores ( $ps = 1.00$ ). Similarly, the items of PTSD/Anxiety/Depression-related pseudosymptom scale were the least frequently endorsed by truth tellers when compared to all four feigning groups ( $ps < .001$ ). However, civil feigners obtained significantly higher scores than criminal warned feigners ( $p = .003$ ), and civil warned feigners obtained marginally higher scores than the same criminal group ( $p = .051$ ). The rest of the feigning group comparisons were not significant ( $ps > .286$ ).

### Detection accuracy of SRSI

Table 4 shows the percentages of detected participants in each group after applying both the screening ( $>6$ ) and the standard ( $>9$ ) cutoff points. We further ran the Receiver Operator Characteristics analysis (ROC) and checked the Area Under the Curve (AUC). The results showed that, when all feigning groups are collapsed ( $n = 114$ ), the AUC was good (.916), and the  $>6$  cutoff yielded a sensitivity of .87, and a specificity of .84, whereas the  $>9$  cutoff indicated lowered sensitivity (.80), and increased specificity (.90).

We checked whether the proportion of detected feigning participants using each cutoff point differed depending on their instructions. Using the cutoff of  $>6$ , the detection rate of civil feigners (96.3%) did not significantly differ from the

one found among civil warned feigners (88.5%),  $\chi^2(1) = 1.136, p = .286$ . In the criminal context, the detection rate of the feigning group (89.7%) did not differ from the frequency of detected criminal warned participants (75%),  $\chi^2(1) = 2.190, p = .149$ . Using the cutoff of  $>9$ , the difference within the civil context remain nonsignificant,  $\chi^2(1) = 0.002, p = .964$ , whereas a difference was found among criminal feigners. Namely, the proportion of detected criminal feigners (86.2%) was significantly higher than the one of the criminal warned group (59.2%),  $\chi^2(1) = 5.415, p = .020$ .

### Impact of the consequences

We asked all participants in the warned feigning groups ( $n = 58$ ) whether being informed about the consequences of feigning diminished their motivation to fabricate PTSD symptoms. The majority of participants, 77% ( $n = 45$ ), confirmed that it was indeed the case. We then asked them to specify which consequences they found the most influential from those listed (multiple answers were possible). Taking up resources from genuine patients was rated as highly influential by half of the warned feigners (58%,  $n = 26$ ), as well as legal consequences (53%,  $n = 24$ ). Then, personal consequences were selected (44%,  $n = 20$ ), and influencing the treatment evaluation was the least influential in comparison, selected by a third of participants (33%,  $n = 20$ ).

### Discussion

In this study, we investigated whether presenting the general consequences of feigning to participants instructed to simulate PTSD symptoms in civil and criminal contexts would diminish their symptom overendorsement on the SRSI. Our findings were as follows: Truth tellers obtained the lowest scores on both genuine symptoms and pseudosymptoms scales on SRSI, when compared to all feigning groups, regardless of context. This finding was in accordance with our first prediction, and is well-aligned with the previous literature on the SRSI (e.g., Boskovic, Dibbets et al., 2019; Boskovic, Hope et al., 2019; Merten et al., 2016; 2019). For instance, in their work on SRSI and PTSD-related symptoms, Boskovic, Hope et al. (2019) found that the mean of endorsed genuine symptoms for the honest group with PTSD-related issues was 21, and for pseudosymptoms 7. For the control group in the same study that did not show PTSD-related symptoms, their average was 16 for genuine and 4 for pseudosymptoms, which fits our findings among the genuine group. Another study by Boskovic, Dibbets et al. (2019), which only used PTSD subscales of SRSI, showed that the mean for honest group was 3 genuine symptoms and 1 for pseudo-PTSD-related complaints. In our study, truth tellers obtained almost identical scores on these subscales<sup>2</sup>. However, some of the previous studies also indicated lower symptom endorsement (e.g., Reece, 2017).

**Table 4.** Percentages of participants in each group who failed or pass the SRSI cutoff scores ( $>6$  and  $>9$  endorsed pseudosymptoms).

	N	Cutoff $>6$		Cutoff $>9$	
		% Fail	% Pass	% Fail	% Pass
Truth tellers	31	16.1	83.9	9.7	90.3
Civil context					
Feigners	27	96.3	3.7	88.9	11.1
Warned feigners	26	88.5	11.5	88.5	11.5
Criminal context					
Feigners	29	89.7	10.3	86.2	13.8
Warned feigners	32	75	25	59.4	40.6

<sup>2</sup>The Boskovic, Hope et al. (2019) study included a UK-based sample; Participants in the Boskovic, Dibbets et al. (2019) study were of a mixed cultural-linguistic background.

Further, although none of the groups differed in terms of their apriori distress levels, measured using the IES, these SRSI results indicated that our feigning instructions were successful in eliciting symptom overreporting and that participants were compliant with the instructions.

Although we expected that participants who received the information about the consequences of feigning would exhibit stronger resistance to overendorse symptoms than feigners who did not receive further information, the feigning groups did not mutually differ. The difference was absent on both the total genuine symptoms scores, and the total number of endorsed pseudosymptoms, although the mean values were lower among warned feigners. Unfortunately, the overall lack of differences in our study fits well with previously reported results regarding the prevention of feigning (Horner et al., 2017; Merckelbach et al., 2015; Merckelbach & Collaris, 2012; Niesten et al., 2018).

However, looking at the two contexts and the pseudo-symptoms, it seems that presenting the consequences of feigning might have had an impact on lowering the symptom endorsement among feigners in high-stake situations, such as a criminal trial, rather than on feigners in the personal injury setting. This should not be taken as a surprising finding knowing that feigning indeed occurs on a larger scale in the civil setting than in the criminal one (McDermott et al., 2013; Mittenberg et al., 2002). Another indication of this between-context difference is the results on the pseudo-PTSD subscale. Namely, symptom fabricators in the personal injury setting endorsed significantly more pseudo-PTSD symptoms than feigners in the criminal context. This is in contrast to previous findings by Merckelbach et al. (2009), who showed that presenting a criminal setting vignette elicits more intense feigning behavior than a personal injury scenario, resulting in easier detection than in the former condition. However, our findings might be better understood when considering the type of incentive and feigning behavior literature. For instance, it was shown that possible negative incentives (i.e., losing something) diminish feigning of PTSD more than the presence of positive incentives (i.e., gaining something; Peace & E.S. Richards, 2014). In light of those findings, we could consider possible compensation for the personal injury as a positive, and avoiding prison as a negative incentive. Indeed, taking up resources from genuine patients (i.e., gaining money) and possible legal penalties were graded by our participants as the most influential consequences by the majority of participants in warning groups. Yet, the question about the impact of the consequences was asked after the task, so it might indicate socially desirable responding (e.g., Tracey, 2016), or even cognitive dissonance (Merckelbach & Merten, 2012).

The detection rates of SRSI provided the final support of our assumption that warning might work among criminal feigners. Overall, SRSI performed well, with the proportion of detection above 86% for all feigning groups except the warned feigners. Although the drop in the detection was minimal for the civil warned feigners (75%), it was much larger in the criminal warned group (59%), when the cutoff point of  $>9$  was employed. This, once again, indicates that

warnings about the consequences might have affected symptom endorsement exclusively in this group. However, this finding could also indicate what previous research suggested—that warning participants might not actually diminish the symptom feigning, but rather make it more sophisticated, hence, less often detected (Youngjohn et al., 1999). Indeed, our results flag this issue, specifically for feigners in the criminal context. Namely, the majority of feigners' scores on the SRSI scales did not mutually differ, yet, the detection rate was significantly lower for the criminal warned feigners than for the rest of the feigning groups. Considering the existing literature on the prevention of feigning, our preliminary results indicate that a) using the real-life consequences might be of a stronger impact than moral priming or moral reminders (e.g., Niesten et al., 2018), and b) that the context of feigning is necessary to consider in this type of investigation. Still, our results, although slightly stronger than those previously reported, are not convincing enough to make any conclusion about the implication of this (warning) intervention in practice. Hence, further research is necessary.

A few limitations need to be addressed. First, our sample consisted of students, which directly diminishes the generalizability of our findings. Specifically, students differ from the general public in many relevant aspects. Mainly, our participants are well-educated individuals, often of middle or high socioeconomic status, and highly intelligent. Although previous research showed that feigning success is independent of intelligence (Grieve & Mahar, 2010), all of the mentioned demographic features, as well as cognitive functioning are necessary to take into consideration before determining the applicability of our results to the general public. Second, using the simulation design, as discussed above, is limiting the utility of warnings as our participants are a) asked to feign symptoms, and b) aware of the lack of actual consequences for their behavior. However, as shown in Niesten et al. (2017), even employing an alternative paradigm did not result in different outcomes. Third, our study was conducted in English, and English is not the first language of the majority of our (international) participants. Previous research has indicated that language proficiency has an impact on participants' understanding of the task and questions (Nijdam-Jones & Rosenfeld, 2017). Similar was shown in other work focused on Performance Validity Tests (PVTs; Erdodi et al., 2017), hence, if the language influences PVT outcomes, one can assume that such effects are even stronger when using self-report SVTs. Yet, studies including asylum seekers provided evidence that SVT outcomes are significantly more impacted by the incentives behind the assessment rather than evaluatees' language skills (van der Heide et al., 2017; van der Heide & Merckelbach, 2016). Although the SRSI outcomes of this study did not differ from previously published studies including a non-native English sample (Boskovic, Merckelbach et al., 2020) and a UK-based sample (Boskovic, Hope et al., 2019), it needs to be acknowledged that in this study the language proficiency was self-reported and this issue warrants more investigation. Fourth, we administered the SRSI in an online form, which is not formally recommended by the creators of the measure



(see Merten et al., 2021), and it is possible that online administration decreased the reliability of our results. Fifth, the presented consequences might have been too general and not specific enough for our participants to relate to them. It is likely that if the consequences were more related to either the population used in this study (students), that the impact of that information would be stronger. Finally, our vignettes were very specific, which again limits the generalizability of our findings to other, more severe, situations (e.g., death penalty cases). Therefore, considering the limitations of this study, our findings can serve as an encouragement for necessary further investigation of possible ways to dissuade feigning behavior using alternative study designs, samples, and contexts.

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## Appendix

### Instructions

#### Truth telling group

Dear participant, in the following step of this study, we will present a questionnaire to you that will be used to evaluate your mental health state. We ask you to fill it out honestly, there are no right or wrong answers.

Please, provide as honest answers as possible.

#### Civil context feigning (CF) instructions

Dear participant, before we present the questionnaire, we have specific instructions for you.

Specifically, we kindly ask you to imagine being in the following situation:

You just got fired and your partner left you. You are currently living alone in a rented apartment, and your financial situation is becoming worse by the month. You were driving to yet another job interview when another car (a brand-new BMW) came from out of nowhere, causing you to collide. Nothing major happened, except that your car was scratched. You got out of your car to talk to BMW driver, but he instantly started swearing and yelling at you. He was very arrogant and rude and blamed you for the crash, although he was the one driving over the speed limit and you had the advantage on that crossing.

You missed the job interview and you went back home. You felt very angry and you started googling whether there are any actions you could take against the other driver. You discovered that you could contact your insurance and report what just happened. Actually, you could even exaggerate and say that it was a very traumatic experience, and claim higher compensation. So now you want to report having many symptoms of Posttraumatic Stress Disorder (PTSD), such as flashbacks and high anxiety. There were no other people on the street anyway, so nobody could testify what happened except for you. In the case you report being traumatized by the crash, you may receive a high monetary compensation, and many of your financial struggles would be solved. You decided to do it. You called the insurance company and told them about (your version of) the crash. They were very supportive, but before they could do anything, they asked you go to a psychologist and have them assess your trauma. To do this, the psychologist will give you a questionnaire.

In the following step of this study, we will present a questionnaire to you. Please, imagine that we are the psychologist from the scenario and that this is your evaluation. Hence, keep this scenario in mind when filling out the questionnaire. Remember that you should convince the psychologist that you indeed have PTSD.

#### Civil context warned feigners (CWF)

##### (instructions as above)

... However, before you complete the next task, we want you to be aware of the following consequences of your actions:

First of all, you might face some legal issues. If you are discovered as a feigner, you could be charged with fraud, and you will hence receive a fine or other form of punishment.

Second, you should be aware that feigning directly impacts the genuine patients. For instance, if you receive financial compensation, you should be aware that those resources are limited, hence, that some genuine patients will not be able to receive the monetary help they truly need.

Third, even if you are successful and the psychologist sent you for treatment, your participation in the treatment might obstruct the evaluation of its success in helping people with PTSD. As these sorts of programs are often evaluated by following patients' improvement, your lack of real symptoms will disrupt such assessment. Hence, your report

might diminish the perceived success of the treatment, thus, it could be made unavailable for genuine patients.

Finally, if you want to appear as a genuine PTSD patient, it is important that not many people around you know that you are actually feigning, meaning that you would have to lie to many of your friends or family members. However, if you are discovered as a feigner, they could lose trust in you, and this could be detrimental for your relationships.

Please, keep the previous instructions together with this information in mind once filling out the questionnaire.

#### Criminal context feigners (CrF)

Dear participant, before we present the questionnaire, we have specific instructions for you.

We kindly ask you to imagine being in the following situation:

A few years back you were involved in a bar fight with an obnoxious person who would not leave you alone. Soon, the fight got out of control and you pushed the other person a bit too forcefully, the person fell and was severely harmed. Now, you are in court tried for an aggravated assault as the other person sued you after they recovered. Your attorney says that there are witnesses ready to testify seeing you pushing the other person and assaulting them. You could be sentenced to two years in prison.

Your attorney said that the best thing you could do is to report that you are a severely traumatized person who was triggered at that moment and that you did not have any control over your actions. Specifically, the best thing to do is to say that you have symptoms of Posttraumatic stress disorder (PTSD), such as flashbacks and high anxiety. This way, your attorney says that you can be seen as with diminished criminal responsibility for what happened, hence, you could avoid prison and maybe get a community work sentence and mandatory treatment instead. You agreed to report having PTSD, and your lawyer sent you to a psychologist for assessment of your trauma. The psychologist will give you a questionnaire. Remember that you should convince the psychologist that you indeed have PTSD.

In the following step of this study, we will administer you a questionnaire. Please, imagine that we are the psychologist from the scenario and that this is your evaluation. Hence, keep in mind this scenario when filling the questionnaire out.

#### Criminal context warned feigners (CrWF)

##### (instructions as above)

... However, before you complete the next task, we want you to be aware of the following consequences of your actions:

First of all, you might face some legal issues. If you are discovered as a feigner, you could be charged with fraud, and you will hence receive a fine or other form of punishment.

Second, you should be aware that feigning directly impacts the genuine patients. For instance, if you receive mandatory treatment, you should be aware that the spot in such institutions are limited, hence, that some genuine patients will not be able to receive the help they truly need.

Third, even if you are successful and the psychologist sent you for treatment, your participation in the treatment might obstruct the evaluation of its success in helping people with PTSD. As these sorts of programs are often evaluated by following patients' improvement, your lack of real symptoms will disrupt such assessment. Hence, your report might diminish the perceived success of the treatment, thus, it could be made unavailable for genuine patients.

Finally, if you want to appear as a genuine PTSD patient, it is important that not many people around you know that you are actually feigning, meaning that you would have to lie to many of your friends or family members. However, if you are discovered as a feigner, they could lose trust in you, and this could be detrimental for your relationships.

#### Participants' nationality

**Appendix Table 1.** Participants' nationality.

Nationality	Frequency	Percent	Cumulative percent
Australian	1	.7	.7
Azerbaijani	2	1.4	2.1
Belgian	1	.7	2.8
Brazilian	1	.7	3.4
British	1	.7	4.1
British English	1	.7	4.8
Bulgarian	1	.7	5.5
Croatian	1	.7	6.2
Cypriot	1	.7	6.9
Dutch	64	44.1	51.0
Dutch/Dutch	1	.7	51.7
Dutch & Turkish	1	.7	52.4
Dutch-Moroccan	1	.7	53.1
Egyptian	1	.7	53.8
Finnish	4	2.8	56.6
French	2	1.4	57.9
Georgian	1	.7	58.6
German	15	10.3	69.0
Greek	2	1.4	70.3
Greek/Dutch	1	.7	71.0
Hungarian	3	2.1	73.1
Indian	5	3.4	76.6
Israeli	1	.7	77.2
Israeli/German	1	.7	77.9
Italian	7	4.8	82.8
Japanese	1	.7	83.4
Kazakh	1	.7	84.1
Latvian	1	.7	84.8
Mexican	2	1.4	86.2
Moroccan	1	.7	86.9
Romanian	4	2.8	89.7
Russian	2	1.4	91
Singaporean	1	.7	91.7
Slovak	1	.7	92.4
South African	1	.7	93.1
South Korean	1	.7	93.8
Swedish	1	.7	94.5
Syrian/Dutch	1	.7	95.2
Trinidadian	1	.7	95.9
Turkish	3	2.1	97.9
Ukrainian	2	1.4	99.3
Vietnamese	1	.7	100.0
<b>Total</b>	<b>145</b>	<b>100.0</b>	

**Appendix Table 2.** Geographical regions of participants' origin.

Region	Frequency	Percent
Asia	12	8.28
Australia	1	0.69
East Europe	21	14.48
Mid-America	2	1.38
Middle-East	4	2.76
North Africa	2	1.38
South Africa	1	0.69
South America	2	1.38
West Europe	100	68.97

Percentages may not add up to 100% due to rounding.