

Detection of Malingering in the Assessment of Occupational Disability in the Military

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Abstract

Background: So far only few data are available on the assessment of malingering in the examination of occupational disability due to psychiatric disorders.

Method: 103 German soldiers admitted to an Armed Forces hospital for treatment or medical certification without clinical suspect of malingered symptomatology were compared with an instructed simulation group of healthy participants (control group, N=40). The Morel Emotional Numbing Test (MENT) and the Structured Inventory for Malingered Symptomatology (SIMS) were used.

Results: MENT and SIMS exhibited high sensitivity (.85 / 1.0) and specificity (.92 / .72) in this matter. Covariance analysis including age, rank, status, education, training, admission reason and diagnosis showed that the study group (clinical patients vs. instructed malingerers) alone explained 66.30% (60.73%) of the variance.

Conclusions: MENT and SIMS seem to be useful tools for the detection of malingering in occupational disability examination, especially when applied in combination (German J Psychiatry 2013; 16(2): 54-60).

Keywords: malingered symptomatology, German soldiers, MENT, SIMS, occupational disability

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Introduction

Overreporting of symptomatology is frequently seen in medical diagnostic procedures. Malingering (exaggerated physical or psychological symptoms motivated by external incentives), factitious presentations (motivated by the desire to assume a sick role) or feigning (without any assumptions about its goals) are established varieties of the overreporting phenomenon. Additionally, the symptomatology can be divided into several subtypes, such as somatic, cognitive or psychopathological (APA, 2000). These subtypes differ concerning the involved physical and psychological core symptoms but also with respect to the possible strategies of overreporting, e.g. the observable be-

havior of the examined persons (Slick et al., 1999, Resnick, 2002).

Overreporting is of particular importance in psychiatric disorders because apart from quality of life, the ability to engage in any occupation or gainful employment of the individuals concerned is severely affected (Kessler et al., 2005; Simon et al., 1995, Zimmermann et al., 2009). This psychosocial dimension was also found in studies involving military patient collectives. In a one-year cohort of US soldiers who had been admitted to a psychiatric hospital for inpatient treatment for the first time, 47% left the Armed Forces within six months (Hoge et al., 2002). Similar trends have been observed in the German Armed Forces (Bundeswehr): in the year 2010, 61% of all personnel discharged from service due to health problems had a psychiatric disorder (IAW data by the Bundeswehr Institute of Military Med-

ical Statistics and Data Management, 2012). Another study on soldiers who had received inpatient treatment for post-traumatic stress disorder revealed that 19% had to be discharged from service in spite of inpatient therapy (Bandelow et al., 2012).

Considering the pension-related financial consequences due to a premature discharge, it is of special importance to verify information from medical history and diagnostic findings in cases where a psychiatric disorder is suspected in a soldier (Calhoun et al., 2000). Accordingly, a recent position paper of the American National Academy of Neuropsychology recommended validity tests as a standard element of neuropsychological evaluations (Bush et al., 2005). This effort is supported by studies showing that base rates of malingering in medical disorders have to be estimated between 22% and 39% (Mittenberg et al., 2002).

To meet these challenges a number of validity scales have been developed within the last years. Examples of such tests include the Minnesota Multiphasic Personality Inventory (MMPI-2) (which is a personality inventory but has subscales for validity testing) (Greene, 2000; Jones et al., 2012), the Structured Inventory for Malingered Symptomatology (SIMS) (Smith et al., 1997; Jelicic et al., 2011), the Personality Assessment Inventory (PAI) (Morey, 1991; Hopwood et al., 2007; Morey, 2007; Edens et al., 2007), the Structured Interview of Reported Symptoms (SIRS) (Rogers 2008, Edens et al., 2007, Freeman et al., 2008), the SIRS-2 (Rogers, 2010) and the Morel Emotional Numbing Test (MENT) (Morel, 1998; Morel, 2008). These testings usually aimed at persons with psychiatric disorders in forensic settings or with financial compensation claims (Kucharski et al., 2007; Wisdom et al., 2010). The majority of military-related studies dealt with the validation of compensation-seeking in war veterans (Freeman et al., 2008; Morel 1998).

However, studies on different patient groups showed that the transferability of the results was limited. Severe symptoms of Posttraumatic Stress Disorder (PTSD) e.g. led to conspicuous values on the respective MMPI-scales, although no suspected overreporting could be confirmed in the test person's answering behavior (Greene, 2000).

Furthermore, the detection of overreporting in the assessment of occupational disability and fitness for work – although a socio-economically significant situation – has been paid little attention to yet, and even less in the military context. The military usage might be especially problematic, because the described influence of symptom severity on validity scales may even have a more serious impact in a military population known to have a high prevalence of PTSD (Hoge et al.,

2002).

The aims of this study therefore were to evaluate two tests for suspected malingering with different methodological approaches, the Morel Emotional Numbing Test (MENT) and the Structured Inventory for Malingered Symptomatology (SIMS), as to their suitability as validity test tools in the assessment of occupational disability in Bundeswehr soldiers.

Methods

Subjects

103 active male Bundeswehr soldiers and reservists (age M: 25.6 years; SD 7.6) who received outpatient / inpatient treatment (age M: 25.3 years; SD 7.3) or medical certification due to psychiatric disorders (age M: 25.9 years; SD 7.6) at the Bundeswehr Hospital Berlin in 2010/2011 as well as 40 military personnel without evidence of mental illness (age M: 25.4 years; SD 7.5) participated in the study. For the socio-biographical data and clinical diagnoses gathered from the groups, see table 1. No significant differences between the patient and the control group and between the two patient subgroups were found (data not shown).

The patient groups were admitted to the Bundeswehr hospital by their attending general practitioners ("unit physicians"). In N=51 patients, the admission reason for hospitalization was a need for psychiatric-psychotherapeutic counseling or treatment (group 1). In N=52 soldiers (group 2), a medical certification had to be obtained on specific questions (driving fitness, fitness for deployment, general fitness for military service). The content and form of the latter correspond to civilian occupational disability and fitness for work assessments, whose outcomes range from individual occupational performance profiles to early retirement eligibility.

The files of these groups were looked through by two inde-

Table 1: Sociobiographic and diagnostic characterization of the sample

Diagnosis	Addiction	Depression	Neurotic disorder	Personality disorder	Other
Rank	n=13 Enlisted	n=10 NCOs	n=58 Officers	n=5 Reserve	n=17
Status	n=69 Conscript	n=52 Voluntary service conscript ¹	n=13 Temporary-career volunteer ²	n=13 Regular ³	Reserve
Education level	n=48 ⁴	n=13 ⁵	n=63 University entrance qualification	n=12 University education	n=11
Apprenticeship	n=29 Yes: n=98	n=64 No: n=45	n=39	n=11	

¹23 months

²for 4–12 years

³until retirement

⁴secondary modern/intermediate school, comprising grades 5 to 9

⁵secondary modern/intermediate school, comprising grades 5 to 10

pendent expert raters with a view to clues indicating simulation. According to DSM-IV-TR (Chapter V65.2) the following criteria suggesting malingering were checked:

- diagnostic procedures in a forensic context
- obvious discrepancy between reported symptoms and objective findings
- lack of cooperation in diagnostic procedures or treatment measures
- antisocial personality disorder

Due to these criteria, three patients had to be excluded from the study. In the remaining clinical group (N=103) malingering was considered satisfactory unlikely and thus they were accepted as valid for a comparison with an instructed malingerers group. This latter group (instructions see below) was recruited from the staff of the hospital. A clinical interview was performed by a psychiatry specialist. Persons with psychiatric disorders or treatment were excluded from participation.

In summary this study thus represented a simulation design with a clinical patient comparison group not suspicious of malingering as recommended in previous studies (Rogers 2008). Participation in the study was voluntary and required the patient to sign a declaration of consent; no fee was paid. Consent by the Ethics Committee was not sought since the non-invasive tests were used in a clinical and/or occupational medicine-related context, and academic monitoring only represented a partial aspect of the project.

Instruments and procedure

The *Morel Emotional Numbing Test (MENT)* contains 60 photographs where actors show portraits of various emotional states (e.g. grief, bashfulness, anger, etc.). Before starting the test, the study participant is informed that "psychological symptoms" may lead to mistakes in the perception and interpretation of feelings in other people. It is then explained that the test is aimed at finding out whether such a deviation is also present in the test person. He/she is offered a choice between one correct and one wrong interpretation variant. The suspected malingerer is thus tempted to prove his inability to interpret the pictures, though even severe psychiatric disorders like psychoses have shown to give correct interpretations (Morel 1998). The cutoff is set at seven wrong choices (Morel 1998).

The control group additionally was given the following instruction (method according to Calhoun et al. [2000]):

"Imagine you were a soldier wanting to leave the Bundeswehr before the end of your service obligation. You are undergoing medical assessment with the aim of being considered unfit for service due to a psychological disorder. The psychological disorder of your choice is depression, which may have the symptoms noted on this list (see below). But you do not really suffer from a psychological disorder (depression), you only intend to fake or simulate it. You must therefore answer the following tests in a way that makes it impossible to notice the fact that you are simulating, even

for a psychologist who will analyze the tests later." List of depression symptoms (according to DSM-IV):

- Feeling sad or empty
- Feeling worthless or guilty
- Diminished interest or pleasure in all or almost all activities most of the day
- Insomnia or hypersomnia
- Fatigue or loss of energy
- Physical symptoms (e.g. diminished ability to concentrate, abdominal pain, congestion in the head, chest pressure, back / neck tension, nausea, sweating, restlessness)

Unpublished clinical trials within the Bundeswehr showed that depression symptoms are of particular importance in occupational disability assessment within the Bundeswehr, therefore, the control group was instructed to simulate symptoms of depression. As a standardized measure the Beck Depression Inventory was used.

Additionally, the German version of the Structured Inventory of Malingered Symptomatology (SIMS), referred to as "*Strukturierter Fragebogen Simulierter Symptome (SFSS)*", was used, which exhibited satisfactory test quality criteria according to Cima (2003). The *SFSS* contains 75 items with true-false screen. The questions address psychological complaints of different dimensions (affective disorders, intelligence, psychosis, mnemonic disturbance, neurologic symptoms) and contain answering possibilities suspicious of malingering. The cumulative value with an overall cutoff >16 was chosen (Rogers et al., 1996; Smith et al., 1997; Cima et al., 2003).

The sensitivity of the SIMS and the MENT was based on the wrong statements made by the control group; for specificity, the treatment/counseling group was chosen. As additional quality indicators, "positive predictive power" (PPP) and "negative predictive power" (NPP) were computed (Cima et al., 2003).

In addition to the admission groups, further influencing variables on the results were tested: age, rank, status (duration of the contractual relationship as a soldier), level of education, premilitary occupational training level and the clinical diagnosis. For distributions, see Table 1.

Statistical Analysis

The primary target values of evaluation were the raw values in the MENT (number of mistakes) and the SIMS (number of statements suggesting simulation), as well as the raw values in the BDI. The verification of differences between the groups was done using the Wilcoxon k-sample test. For post-hoc paired comparisons, the Wilcoxon 2-sample test was applied. All tests were carried out with a double-sided error probability of $p < .05$.

As a second step the influence of the variables admission group, age, rank, status, level of education, premilitary occupational training level and diagnosis were verified by means

Table 2. Results of the BDI, MENT and SIMS in the study groups

Study group	N	MV	SD	Min	P25	Median	P50	Max
BDI								
Counseling/therapy	51	15.65	12.45	0.0	6.0	11.0	23.0	52.0
Assessment	52	14.92	13.29	0.0	3.0	9.5	25.0	46.0
Control	40	45.45	11.73	24.0	37.5	44.0	51.0	72.0
MENT								
Counseling/therapy	51	3.20	5.09	0.0	1.0	2.0	4.0	33.0
Assessment	52	2.88	3.35	0.0	1.0	2.0	3.0	16.0
Control	40	30.25	17.48	1.0	19.0	28.0	39.5	60.0
SIMS								
Counseling/therapy	47	12.68	7.71	1.0	7.0	12.0	17.0	38.0
Assessment	49	10.86	6.94	1.0	6.0	10.0	15.0	32.0
Control	40	43.58	13.30	19.00	35.00	44.00	50.5	71.0

MV = mean value; SD = standard deviation; Min = minimum value; P25 = 25th percentile; P50 = 50th percentile; Max = maximum value; control: control group (instructed malingerers)

of covariance analysis. All statistical evaluations were performed by SAS 9.2. Since we used age as a continuous variable in the analysis we performed an ANCOVA instead of classifying age and using a simple ANOVA.

Results

In all scale values (Tables 2 and 3), the patient groups counseling/treatment and medical assessment differed from the control group. The treatment and assessment groups did not differ in direct comparison in any of the three tests.

All significant results remained significant even after Bonferroni correction for multiple testing. Covariance analysis showed that 68.39% of the variance in SIMS scores could be explained by age, rank, status, education, training, admission reason and diagnosis; the admission reason alone explained 66.30% of the variance. Adding the other variables allowed explaining an additional 2.09% of variance at the most. Simi-

Table 3: Statistical influence of the study group on the results in the BDI, SIMS and MENT. Upper triangular matrix: results of the Wilcoxon 2-sample test for paired comparisons (error probability p); lower triangular matrix: Cohen's d; Control: control group (instructed malingerers)

Study group	Assessment	Counseling/Therapy	IM
BDI			
Assessment	-	.5064	< .0001
Counseling/therapy	0.06	-	< .0001
Control	2.44	2.46	-
SIMS			
Assessment	-	.23	< .0001
Counseling/therapy	0.25	-	< .0001
IM	3.23	2.94	-
MENT			
Assessment	-	.89	< .0001
Counseling/therapy	0.08	-	< .0001
IM	2.63	2.40	-

lar aspects applied to the MENT; in this case, the admission reason alone explained 60.73% of the variance. By adding the other variables mentioned, the variance percentage declared increased by 3.04 to a value of 63.77%.

In the SIMS, the sensitivity achieved was 1.0; in the MENT, it was .85. Specificity of the MENT was .92 while that of the SIMS was .72. The Positive Predictive Power of the MENT was .89; in the SIMS, it was .74. Negative Predictive Power of the MENT was .89; in the SIMS, it was 1.0.

Discussion

The aim of this controlled study was to verify the discriminative validity of the Morel Emotional Numbing Test (MENT) and the Structured Inventory of Malingered Symptomatology (SIMS) for the assessment of malingering. The target group was composed of male Bundeswehr soldiers whose fitness for their job-related functions was to be examined. For this purpose two clinical patient groups admitted for different reasons without indications of malingering were compared with a clinically healthy control group (instructed malingerers).

Overall, evidence could be found that the MENT and the SIMS are valid tools for this indication. It seems that both methods are suitable to distinguish between clinical patients not suspicious of malingered symptomatology versus an instructed malingerer group.

The study thus represented a simulation design. Simulation designs are considered to have strong internal validity due to standardized instructions, conditions, incentives and manipulation checks. A disadvantage is that the participants do not have to face consequences of succeeding or failing at a particular response style. The use of genuine patients as in this study is recommended (Rogers 2008).

The results may also be generalized to other, non-military patient groups, since the assessment practice of a soldier's fitness for service can be considered as comparable to a civil person's ability to engage in any occupation or gainful employment.

We are not aware of other studies on the MENT or SIMS in this area of application so far. Previous evaluations were carried out concerning forensic questions (criminal responsibility, capacity to act in court, convicts etc.) (Cima et al., 2003; Edens et al., 2007; Kucharski et al., 2007; Lewis et al., 2002; Miller et al., 2004; Poythress et al., 2001; Vitacco et al., 2007), claims for compensation in the military and non-military sector (Alwes et al., 2008; Freeman et al., 2008; Morel et al., 2008; Wisdom et al., 2010) or groups of instructed students (Jelicic et al., 2007; Jelicic et al., 2011; Merckelbach et al., 2003). Both tools were judged as valuable for the respective aims.

The patients of this study who were in clinical therapy were given the tests' standard instructions. Due to the treatment indication and the expert rating of the treatment files, there was no suspicion of malingering, and accordingly, these groups were used to determine the specificity of the MENT and the SIMS. The results of a patient group undergoing therapy who had been instructed along the lines of test conformity were also used in former studies to assess specificity (Cima et al., 2003; Merckelbach et al., 2003); in other cases, the statements made by healthy study participants served as a basis (Jelicic et al., 2007; Jelicic et al. 2011).

The specificity of the MENT achieved here, with its value of .92, is considerably higher than in the case of the SIMS (.72). A high specificity of the MENT was also found with US veterans, where it amounted to 1.0 (Morel 2008). Cima reported a higher specificity for the SIMS: .86 (Cima et al., 2003).

With respect to the control group of instructed malingerers without a psychological disorder, the *sensitivity* of both tests was very good with values of .85 and 1.0, respectively. For the SIMS, it thus was even somewhat higher than for the MENT. Similar values were also found in other indication groups: For US veterans with financial compensation claims, MENT sensitivity was between .64 and .96 (Morel 1998, Morel 2008). The SIMS, too, yielded high values of over .85, e.g. in instructed student groups (Cima et al., 2003; Jelicic et al., 2007).

The results for the Positive Predictive Power of the MENT (.89) and the SIMS (.74) as well as the Negative Predictive Power of the MENT (.89) and the SIMS (1.0) supported the values for sensitivity and specificity.

The results were independent of age, level of education and premilitary occupational training, diagnosis, military rank or contractual relationship with the Bundeswehr, which indicates the methods' applicability in a wide range of different assessment groups. In another military sample examined, Morel also found a high degree of robustness of the MENT with respect to the clinical diagnosis, the age and the level of education (Morel 1998). This was confirmed by investigations of the SIMS and other validity tests (Kucharski et al., 2007; Poythress et al., 2001). However, in one previous study the SIMS seemed to be sensitive to influences by dissocial personality traits of the test persons (Cima et al., 2003).

Limitations

A limitation of this study is the foundation of the conclusions in just one methodological approach (the simulation design). As each design has advantages and disadvantages, the combination of two or more has previously been recommended, e.g. with a known groups design. Additionally military-related data may contain specific biases that limit generalizing them to civil groups.

Conclusions

The availability of various validity test methods with different methodological approaches in psychiatric assessment (like MENT and SIMS in this study) may be of considerable importance due to the fact that clues pointing to malingering should not rely on one single test instrument only, which might be easy to see through or might falsely indicate simulation and thus not do justice to the test person. Validity testing with a broad foundation is indispensable especially in medical certification matters of high socio-economic relevance, such as occupational disability. The advantage of the parallel employment of the MENT and the SIMS for the indication examined in this study seems to be consisting in the combination of high sensitivity (SIMS) and high specificity (MENT).

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