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Competence of mentally ill patients: a comparative empirical study

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ABSTRACT

Background. This study investigates the competence of patients with dementia, depression and schizophrenia to make treatment decisions. The outcome of an objective test instrument is presented and compared with clinical assessment of competence by the attending physician.

Method. The MacArthur Competence Assessment Tool-Treatment (MacCAT-T), a test instrument to assess abilities in different standards of competence, was administered to patients with diagnoses of dementia ($N=31$), depression ($N=35$) and schizophrenia ($N=43$). Statistical significance of group differences in the MacCAT-T results were tested with the chi-square test. The concordance of the test and clinical assessment of competence by the attending physician were evaluated by Cohen's kappa coefficient.

Results. Patients with dementia, as a group, showed significantly more often impaired performance than those with schizophrenia who were still more impaired than depressed patients. Patients were classified as impaired or not depending on the standards used. By combination of all standards substantially more patients were classified as impaired than by clinical assessment (67·7 *v.* 48·4% of patients with dementia, 20·0 *v.* 2·9% of patients with depression, 53·5 *v.* 18·4% of patients with schizophrenia).

Conclusions. Using different standards of competence the study showed substantial differences among patients with dementia, depression and schizophrenia. The high proportion of patients identified as incompetent raises several ethical questions, in particular, those referring to the selection of standards or the definition of cut-offs for incompetence. The discrepancy between clinical and formal evaluations points out the influence of the used procedure on competence judgements.

INTRODUCTION

In medical ethics the principle of a patient's self-determination obliges the physician to obtain the patient's consent prior to medical treatment (Beauchamp & Childress, 2001). A condition for valid informed consent is the patient's competence, which may be impaired, particularly in patients with mental problems (Helmchen & Lauter, 1995; Koch *et al.* 1996; Helmchen, 1998; Vollmann, 2000).

In clinical practice, the physician generally presumes competence on the patient's part. But, if a situation causes him to examine competence, in most cases he will proceed using his own subjective judgement and clinical experience and has difficulty applying standards suggested in the literature (McKinnon *et al.* 1989; Markson *et al.* 1994). In a given case, physicians also often evaluate competence differently (Marson *et al.* 1997). Considering the ethical and legal significance of competence and the desire for physicians' evaluations to be transparent and reliable, various objective testing procedures have been developed and applied in clinical trials in recent years (Janofsky *et al.* 1992; Bean

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et al. 1994; Marson *et al*. 1995; Kitamura *et al*. 1998).

In studies using structured test interviews, a considerable proportion (40–75%) of acutely psychotic and schizophrenic patients had no competence to consent (Grossman & Summers, 1980; Appelbaum *et al*. 1981; Hoffman & Srinivasan, 1992; Grisso & Appelbaum, 1995). Patients with depression, however, displayed fewer impairments in empirical studies (Grisso & Appelbaum, 1995; Appelbaum *et al*. 1999). Among patients with dementia, the proportion of non-competent persons increased both with increasing severity of the disease and with increasing stringency of the applied legal standards (Marson *et al*. 1995; Kim *et al*. 2001). A significant correlations between competence and multiple cognitive functions has been described in demented patients (Marson *et al*. 1996).

There are only a few studies where competence has been directly compared among various diagnostic groups using the same test instrument. One such study, the 'MacArthur Treatment Competence Study' (Grisso & Appelbaum, 1995), compared schizophrenic, depressed, and medical patients using instruments relating to the following four legal standards: to understand information relevant to the decision about treatment; to manipulate the information rationally (or reason about it) in a manner that allows one to make comparisons and weigh options; to appreciate the significance for one's own situation of the information disclosed about the illness and possible treatments; and to express a choice. Patients with scores below defined limits were categorized as impaired in those standards. The majority of patients of all diagnostic groups performed adequately in all standards. However, patients with schizophrenia, as a group, had significantly more deficits than the other two diagnostic groups, and displayed the largest proportion of patients with impairment. An hierarchical order of the standards was not detected. For each patient group combined standards (impairment was defined as poor performance on any of the standards) resulted in an increase in the proportion of impaired patients. Since the instruments used were too cumbersome for application in day-to-day clinical practice, the authors developed a short-form with a high degree of inter-rater reliability, the 'MacArthur Competence Assessment Tool-Treatment' (MacCAT-T) (Grisso *et al*. 1997; Grisso & Appelbaum, 1998).

Our study compared patients from three diagnostic groups (dementia, depression and schizophrenia) using the MacCAT-T the first time in patients with dementia. It was designed to answer the following questions and hypotheses: (1) What proportion of patients display impairments and how do the three diagnostic groups differ with regard to performance in the standards for determining competence? (because the MacCAT-T measures cognitive functions primarily we expect that patients with depression perform better than demented or psychotic patients); (2) Can the results of the 'MacArthur Treatment Competence Study' be replicated, according to which a combination of standards results in an increase in the proportion of patients with impairment?; and, (3) To what degree do the objective test results match the clinical assessment of competence by the attending physician? In our hypothesis we expect a closer match in patients with severe cognitive disorders such as dementia in comparison with schizophrenic and depressed patients.

METHOD

The study included patients with diagnoses of dementia ($N=31$, average age = 69·7, S.D. = 9·3), depression ($N=35$, average age = 52·9, S.D. = 13·3) and schizophrenia ($N=43$, average age = 34·4, S.D. = 11·9) who were treated at the Department of Psychiatry, Free University of Berlin. The chart diagnoses were confirmed by psychiatrists, who made a detailed clinical interview with the patients. Furthermore, for the purpose of this study we used the Mini-Mental State Examination for the patients with dementia (mean = 17·3, S.D. = 5·6), the Hamilton Depression Scale for the patients with depression (mean = 21·8, S.D. = 6·3) and the Brief Psychiatric Scale for the patients with schizophrenia (mean = 41·7, S.D. = 9·2). For diagnostic classification, the criteria of the 10th revision of the International Classification of Diseases (ICD-10) had to be fulfilled (dementia, F00–03; schizophrenia, F20; depression, F32/F33). Additional inclusion criteria were sufficient German language skills and psychopharmacological treatment. We did not include any detained patients.

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During the study period 192 patients were contacted for participation without additional selection criteria. Thirty-one patients declined to participate in the study. Another 52 patients could not be studied due to a change in diagnosis, insufficient German language skills, early discharge, or on account of the severity of the illness. Data from 109 patients went into the total evaluation.

The study was approved by the local research ethics committee and was performed in accordance with the guideline on medical research with incompetent patients of the Central Ethics Committee at the German Federal Chamber of Physicians (Zentrale Ethikkommission, 1997). Because of the minimal risk, the scientific and clinical importance, the missing alternative research method and the free choice of the patients to participate, this study seems to us ethical acceptable. Before entering the study all patients have been informed about the study's purpose and procedure by a research physician and gave written consent. This does not necessarily mean that these patients are competent to give informed consent to psychopharmacological treatment in accordance with different methods of testing which are examined in this study. All participants with dementia were treated in the clinic or day-clinic whereas all patients with depression or schizophrenia were in-patients. The majority of in-patients were tested within 1 week after hospital admission. Patients in all three diagnostic groups displayed clinical symptoms of the illness, which were documented using psychiatric scales.

As an instrument to measure competence to consent to medical treatment, we used the MacCAT-T, a semi-structured interview which requires approximately 30 min for assessing the following patients' abilities related to competence: understanding the disorder and treatment; reasoning; appreciation, divided into appreciation of the disorder and appreciation of treatment benefit; and expressing a choice (Grisso *et al*. 1997; Grisso & Appelbaum, 1998). Two research physicians of the department have been trained to perform the MacCAT-T interview in German with a videotape by Grisso and Appelbaum. In the structured procedure of the MacCAT-T patients are given individual information on their disorder, including symptoms and diagnosis; they are also informed about the nature, benefits and risks of the recommended drug therapy, as well as alternatives to it. To examine understanding, patients are given the task of retelling the information in their own words. The interviewer evaluate the accuracy of patients' statements. Reasoning is assessed using questions that examine whether patients can grasp the consequences of their decision for or against drug treatment for their personal lives, what effects the various decision options can have for their daily lives, and whether they draw comparisons between the options. To examine appreciation, patients are asked whether they can relate the medical information to themselves and acknowledge that they have the specified psychopathological symptoms (appreciation of disorder), and whether they can see a benefit for themselves in the proposed treatment (appreciation of treatment benefit). The subjects also receive full credit for appreciation of disorder or appreciation of treatment benefit, if they can offer a reasonable explanation for an attitude differing from their physician's recommendation, for instance if they decline to take a recommended neuroleptic treatment, recalling strong side effects from an earlier treatment with the same medication. At the end of the interview, patients are asked for their decision for or against the treatment. If patients are able to formulate such a decision, they fulfil the requirements in the standard 'expressing a choice'. The logical consistency of the choice with their previous arguments is included in evaluation of the reasoning standard.

Patient responses were rated using the following scale: 2 points for adequate; 1 point for partially sufficient; and 0 points for insufficient. The following score totals could be achieved in the individual standards: understanding 0–6; reasoning 0–8; appreciation 0–4, which we evaluated separately according to appreciation of disorder 0–2 and appreciation of treatment benefit 0–2 and expressing a choice 0–2.

To allow group comparisons the results were dichotomized in the categories 'impaired'/'unimpaired' and the following cut-offs defined for the 'impaired' category in accordance with the 'MacArthur Treatment Competence Study' (Grisso & Appelbaum, 1995): for understanding, $\leqslant 4$; for reasoning, $\leqslant 3$; for appreciation of disorder and treatment benefit, 0 for each. Following individual presentation of the standards,

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they were combined and the proportion of impaired patients calculated, with patients being considered impaired if they were impaired in at least one of the combined standards.

The attending physicians were asked to assess the competence to make treatment decisions of their patient before the formal testing was performed. All testing was done on the same day. The attending physician was asked to make his judgement freely on the basis of his or her own clinical experience. In Germany a generally accepted scheme or structured framework for the assessment of competence does not exists. However, the German legal concept of competence is rather similar to the principles of Mac-CAT-T, which was developed in the context of the American legal system.

Non-parametric methods were used in statistical evaluation. To avoid sampling sizes that were too small for statistical evaluation, score distributions were summarized into score ranges, which were separately described according to individual standards of the MacCAT-T for each diagnostic group. The distribution of the grouped scores were tested for statistically significant differences with the chi-square test. All tests were performed with an error probability of $P<0{\cdot}05$. With a Bonferroni adjustment for multiple testing in the four standards, this produces an error probability of $P<0{\cdot}0125$ in the individual test. To examine the association of assessments ('impaired' *versus* 'not impaired') between the individual standards, Cohen's kappa coefficient was used for two standards and Fleiss' kappa coefficient was used for more than two standards. Cohen's kappa was also used for assessing the association between the standards and the clinical judgement of competence by the attending physician.

RESULTS

The score distribution in the standards of understanding, reasoning, appreciation of disorder and appreciation of treatment benefit shows substantial differences among the diagnostic groups (Table 1). Among patients with dementia, there was a tendency in the distribution towards lower score ranges compared to the other two diagnostic groups. As a group, the patients with dementia also showed the greatest proportion of patients with impairments, exceeding 50% in the standards of understanding and reasoning. The slightest impairments were found in the group of depressed patients: more than three out of four patients were in the upper score range in the standards of understanding and appreciation of disorder and appreciation of treatment benefit. The proportion of patients with impairments varied from 17·1% in understanding to 0·0% in appreciation of disorder, which is the lowest among all diagnostic groups. The test performance of the schizophrenic patients, as a group, was higher than the performance of patients with dementia, but lower than the performance of depressed patients. Patients with schizophrenia showed clear deficits in reasoning (46·5% impaired), but only slight deficits in appreciation of treatment benefit (7·0% impaired). Patients in all three diagnostic groups are more severely impaired in the standards of understanding and reasoning than in appreciation of disorder and treatment benefit. With regard to the sociodemographic data of age, sex and education, no statistically significant differences were detected between patients with or without impairment in all diagnostic groups.

In the standard 'expressing a choice', 28 patients with dementia (90·3%), 40 patients with schizophrenia (93·0%), and 33 patients with depression (94·3%) received the full credit. The differences in the distribution of scores between the diagnostic groups were statistically not significant ($\chi^2=4{\cdot}87$, $\mathrm{df}=4$, $P=0{\cdot}301$). Since almost all patients were thus able to express a preference of a treatment option, this standard was not further investigated as a variable in subsequent statistical evaluations.

The degree of agreement between the different standards in their discrimination between 'impaired' and 'not impaired', measured using Cohen's κ coefficients, is shown for the total study group in Table 2. The highest agreements were between understanding and reasoning and between appreciation of disorder and appreciation of treatment benefit. The low kappa coefficients observed for some of the combinations of standards (i.e. between understanding and appreciation of disorder or appreciation of treatment benefit) reveal that patients who are classified as impaired by one standard are not necessarily impaired by another standard.

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Table 1. *Score distribution in MacCAT-T*

Standards and score ranges	Patients with Dementia ($N=31$)		Depression ($N=35$)		Schizophrenia ($N=43$)	
	N	%	*N*	%	*N*	%
Understanding						
0·0–2·0	11	35·5	0	0·0	1	2·3
2·1–4·0	9	29·0	6	17·1	11	25·6
4·1–6·0	11	35·5	29	82·9	31	72·1
Reasoning						
0–3	16	51·6	3	8·6	20	46·5
4–5	9	29·0	12	34·3	15	34·9
6–8	6	19·4	20	57·1	8	18·6
Appreciation of disorder						
0	7	22·6	0	0·0	7	16·3
1	5	16·1	8	22·9	23	53·5
2	19	61·3	27	77·1	13	30·2
Appreciation of treatment benefit						
0	10	32·3	1	2·9	3	7·0
1	10	32·3	5	14·3	6	14·0
2	11	35·5	29	82·9	34	79·1

The following cut-offs apply for 'impaired': $\leqslant 4$ for understanding; $\leqslant 3$ for reasoning; 0 for appreciation of disorder; 0 for appreciation of treatment benefit. Significance of group differences in score ranges (df = 4): understanding, $\chi^2 = 30{\cdot}92$, $P < 0{\cdot}001$; reasoning, $\chi^2 = 22{\cdot}14$, $P < 0{\cdot}001$; appreciation of disorder, $\chi^2 = 26{\cdot}66$, $P < 0{\cdot}001$; appreciation of treatment benefit, $\chi^2 = 23{\cdot}51$, $P < 0{\cdot}001$.

Significance of group differences in 'impaired' category (df = 2): understanding, $\chi^2 = 17{\cdot}76$, $P < 0{\cdot}001$; reasoning, $\chi^2 = 16{\cdot}81$, $P < 0{\cdot}001$; appreciation of disorder, $\chi^2 = 8{\cdot}24$, $P < 0{\cdot}05$; appreciation of treatment benefit, $\chi^2 = 14{\cdot}88$, $P < 0{\cdot}01$.

Table 2. *Agreement between the standards in their evaluation as 'impaired' or 'not impaired' (Cohen's kappa coefficient)*

	Reasoning	Appreciation of Disorder	Appreciation of Treatment benefit
Understanding	0·50***	0·34***	0·38***
Reasoning		0·37***	0·42***
Appreciation of disorder			0·59***

*** $P < 0{\cdot}001$.

All standards together showed moderate agreement (Fleiss' $\kappa = 0{\cdot}41$, $P < 0{\cdot}001$).

Certain combinations of individual standards resulted in a clear increase in patients with impairment (Table 3). The greatest increase was in the proportion of patients with impairment in the combination of understanding and reasoning: 20·0% in patients with depression, 53·5% in patients with schizophrenia and 67·7% in patients with dementia. Additional combination with appreciation of disorder and treatment benefit did not produce a further increase.

Of the patients examined, 15 with dementia (48·4%), eight with schizophrenia (18·4%), and one patient with depression (2·9%) were categorized by the attending physician in the clinical evaluation as unable to give consent for drug therapy. By comparison, the proportions of patients categorized as impaired in at least one standard in the MacCAT-T were significantly greater than in the clinical judgement (dementia 67·7 *v.* 48·4%; schizophrenia 53·5 *v.* 18·4% and depression 20·0 *v.* 2·9%). The agreement between the clinical evaluation of competence and the results of the MacCAT-T in the groups with dementia and schizophrenia is shown in Table 4. In the group with dementia, we found moderate agreement in the clinical assessment with understanding, reasoning and appreciation of treatment benefit, while in the group with schizophrenia the clinical judgement agreed moderately with appreciation of treatment benefit and highly with appreciation of disorder. The one depressed patient categorized as incompetent to give consent was classified in the MacCAT-T as impaired in understanding and reasoning.

DISCUSSION

Using different standards of competence the study showed substantial differences among

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Table 3. *Patients with impairment (combined standards)*

	Patients with					
	Dementia ($N=31$)		Depression ($N=35$)		Schizophrenia ($N=43$)	
Standards	*N*	%	*N*	%	*N*	%
U and/or R	21	67·7	7	20·0	21	53·5
U and/or A1	20	64·5	6	17·1	14	32·6
U and/or A2	20	64·5	6	17·1	13	30·2
R and/or A1	17	54·8	3	8·6	20	46·5
R and/or A2	16	51·6	3	8·6	20	46·5
A1 and/or A2	11	35·5	1	2·9	7	16·3
U, R and/or A1	21	67·7	7	20·0	23	53·5
U, R and/or A2	21	67·7	7	20·0	23	53·5
U, A1 and/or A2	20	64·5	6	17·1	14	32·6
R, A1 and/or A2	17	54·8	3	8·6	20	46·5
U, R, A1 and/or A2	21	67·7	7	20·0	23	53·5

U, Understanding; R, reasoning; A1, appreciation of disorder; A2, appreciation of treatment benefit.

Table 4. *Agreement between clinical assessment of competence and the standards of MacCAT-T (Cohen's kappa coefficient)*

	Dementia	Schizophrenia
Understanding	0·425*	0·228 NS
Reasoning	0·420*	0·319**
Appreciation of		
Disorder	0·343*	0·758***
Treatment benefit	0·413*	0·494***

* $P<0·05$; ** $P<0·01$; *** $P<0·001$.

patients in all diagnostic groups. We could confirm the results from earlier studies, which showed that schizophrenic patients had greater impairments than depressed patients in the standards relevant for competence to consent to treatment (Bean *et al.* 1994; Grisso & Appelbaum, 1995). This first application of the MacCAT-T to patients with dementia showed even greater impairments in this diagnostic group than among schizophrenic or depressed patients. In each standard, a significantly greater proportion of patients with dementia were impaired in comparison to the other two diagnostic groups, in fact more than 50% in understanding and reasoning. Despite the substantial proportion of impaired patients, many patients displayed no impairments in the standards, so that the diagnosis is not suitable as the sole indicator of incompetence in the individual case. The relatively low impairments in appreciation of disorder and appreciation of treatment benefit may be due to the more conservative definition of cut-offs in these standards, since only the lowest score (0), i.e. the total lack of appreciation of disorder or of treatment benefit, categorizes a patient as impaired.

The paradoxical situation among many schizophrenic patients, who generally appreciated the treatment benefit despite reduced appreciation of the disorder, reminds us of the 'double accounting' among patients with schizophrenic psychoses, familiar from clinical practice. The conspicuously high proportion of such patients with full appreciation of treatment benefit may possibly be explained with a selection effect, since patients with a negative attitude towards treatment frequently also refuse to participate in clinical studies.

In the evaluation as 'impaired' or 'not impaired', there were high agreements between understanding and reasoning and also between appreciation of disorder and appreciation of treatment benefit. The agreements were less in other combinations, the lowest being between understanding and appreciation of disorder. Similar observations have also been made in other studies (Grisso & Appelbaum, 1995; Appelbaum *et al.* 1999). Accordingly, the standards sometimes categorize different patients as impaired, so that we cannot deduce a lack of impairment in other standards from lack of impairment in one standard. For a thorough examination of competence in practice, all

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standards should be examined since deficits in just one standard can call overall competence into question. However, the more thoroughly competence is examined, i.e. the more standards are used in assessing it, the more patients will be evaluated as not competent. The selection and combination of standards depend on previous value judgements. This influences both the content requirements as well as the threshold for defining incompetence to consent.

Compared to the patients categorized as unable to consent by clinical assessment, the proportions of patients impaired in at least one standard of the MacCAT-T was significantly higher. The discrepancy between objective testing methods and clinical assessment in evaluating competence was already described (Rutman & Silberfeld, 1997). Considering the ethical demand to respect patients' self-determination and also to protect patients with impaired competence for their well-being and against serious consequences of incompetent decisions, the question arises of whether clinical assessment or objective testing methods are more suitable for satisfying this demand. In light of the discrepancy found between clinical assessment and objective testing, we must decide whether the risks of decision substitution for possibly competent patients (objective testing) are greater than the risks of possibly non-competent patients making their own decision (clinical assessment).

In our study, the MacCAT-T showed good applicability in clinical practice. Most patients in the study evaluated the interview as positive since it gave them the opportunity to discuss their illness and possible forms of therapy at length with a physician. In our experience patients have great communication needs in this regard. However, some patients complained after the interview that it required a lot of concentration and was difficult at times. For instance, one patient with her first manifestation of schizophrenia said that the test was too much for her on the day of admission. This patient's statement illustrates the practical significance of informed consent within the meaning of an 'educational process' (Roth, 1983) and evaluation of competence within the meaning of an 'evolving process influenced by therapeutic interventions' (Mahler & Perry, 1988). More recent studies point out that reduced abilities related to competence in schizophrenic patients can be improved by educational interventions (Carpenter *et al.* 2000). More intensive education strategies tailored for the individual patients are of major importance in this regard.

There were difficulties administering the MacCAT-T with patients with severe dementia having major cognitive impairments. This raises the question of whether the criteria for objective testing methods are too strictly or too one-sidedly orientated towards cognitive functions while ignoring evaluation of major emotional factors, as critics remark (Elliot, 1997; Charland, 1998; Welie, 2001). Identification of such criteria, which people with cognitive impairments base their decisions on (such as emotional, social-context-specific and biographical), and their integration into evaluation of competence may be starting points for further research. Considering demographic developments with an increasing proportion of older people in the population and consequently also of patients suffering from dementia, such research approaches gain sizable practical significance.

The general validity of the results is limited by the following factors: in-patients were generally not studied on the day of admission but a few days later, often after the start of drug treatment. Despite the fact that acute symptoms are generally still present, we must suspect that patients in a hospital admission situation have even greater impairments in competence. Secondly, we did not include severely ill, mutistic and aggressive patients, since formalized tests such as MacCAT-T require a minimum degree of perceptive ability and cooperation, often lacking in psychiatric patients having severe symptoms of illness. Finally, interpretation of the results is limited by the missing control group, so that we have no data from subjects without mental problems.

Patients from three diagnostic groups were examined in this study. We are faced with the question of whether impairments in competence can be traced to the same causes in these groups. Previously, the connection was examined between competence and specific psychopathological items, measured using clinically established scales, particularly among schizophrenic and depressed patients. Recent observations, however, show that the standards

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for competence correlate more clearly with neuropsychological factors (Carpenter *et al.* 2000), so that the cognitive impairment caused by the illness can be decisive for schizophrenic and depressed patients, as well, especially in the so-called executive functions (Grimes *et al.* 2000). In patients with dementia, however, clinical dementia scales but not neuropsychological testing correlate with formal and clinical assessment of competence (Vollmann *et al.* 2003).

Controversy surrounds the question of whether objective testing methods can replace clinical assessment of competence. A major problem lies in setting the cut-offs in the tests. In many studies, these are set on the basis of statistical considerations, such as the second standard deviation of a normal control group (Grisso & Appelbaum, 1995). Studies comparing the objective testing methods with other evaluation methods (clinical assessment, forensic-psychiatric study) range from complete agreement (Janofsky *et al.* 1992) to significant discrepancies (Rutman & Silberfeld, 1997). In our study, as well, the cut-offs have the primary purpose of allowing statistical comparison of groups and illuminating deficits in examined standards; a categorical decision as to whether competence is present or absent cannot be made solely on the basis of the test results. We take the MacCAT-T to be an suitable instrument for detecting deficits in patients' decision making abilities in a concrete case, which should be followed by a thorough clinical evaluation that also includes non-cognitive aspects.

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