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Diagnosis of Functional Psychoses

Comparison of Clinical and Computerized Classifications

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SUMMARY. The results of a comparison between the clinical diagnoses of 115 probands with functional psychoses, made on the basis of careful clinical history-taking, interviewing and examinations, and those made by computerized evaluation (CATEGO) on the basis of the present state examination (PSE) were presented. The clinical diagnoses of the project psychiatrist and the provisional classification resulting from the application of the CATEGO program to the PSE symptom profiles were in an overall concordance of 82%. In a second step the 20 cases with differences in diagnoses were reevaluated on the basis of the full history and psychopathology and a syndrome checklist was completed. This reevaluation led to a practically full diagnostic agreement.

KEY WORDS: Diagnosis of Functional Psychoses - Clinical vs. Computerized Diagnosis.

INTRODUCTION

The "Present State Examination" (PSE) is a structured clinical interview on the basis of which the main symptoms of functional psychotic and neurotic conditions can be rated. The resulting symptom or syndrome profiles can be used purely descriptively, as a means of comparing samples, or to measure clinical change. In addition the symptom profiles can be used together with a computer program known as CATEGO, to allocate each condition to a clinical class approximately equivalent, under certain circumstances, to a diagnosis (Wing, Cooper & Sartorius, 1974).

The system has been used in two large-scale international studies (Cooper et al., 1972; WHO, 1973) and the limits of its reliability, when used by trained clinicians, have been established in several studies (Kendell et al., 1968; Luria & McHugh, 1974; Wing et al., 1967; WHO, 1973). Wing, Cooper & Sartorius (1974) have outlined the advantages and the limitations of the system. The advantages can only be utilized if the limitations are remembered.

One of the apparent limitations of the PSE, when used alone in order to classify a given mental state, is that many of the factors conventionally regarded as necessary for a diagnosis are left out of account. A clinical interview covers a wider range than simply the symptoms covered in the PSE. There is the previous clinical history, factors thought to be aetiological, the development of the condition, the somatic state of the patient, the family history and an overall "personal clinical impression". Two of these factors can be standardized to some extent. Previous clinical episodes can be rated on the Syndrome Check List (SCL), which is derived from the PSE, and aetiological factors can be codified in the Aetiology Schedule (AS). A recent study of a sample of admissions to a psychiatric hospital in München showed that a very high agreement between clinical and "reference" classification could be achieved if data from PSE (ninth revision), SCL and AS were combined (Wing, Nixon, von Cranach & Strauss, to be published).

The present paper presents the results of a comparison between the clinical diagnoses of a series of patients with functional psychoses, made on the basis of careful and complete clinical history-taking, interviewing and examinations, and those made on the basis of the PSE (and, in the second stage, PSE plus SCL) alone. The latter procedures were carried out independently in London. The object of the exercise was to ascertain the extent to which the much fuller information available in the clinical work-up leads to discrepancies with the reference classification.

METHODS

The instruments used were the International Classification of Diseases, eighth revision (ICD, 1972), the glossary of mental disorders and guide to their classification (WHO, 1974), the WHO version of the eighth revision of the PSE[1] (WHO, 1973), the AMP (Scharfetter, 1972), and the IMPS (Lorr et al., 1963, 1966).

The diagnostic examination included an extensive "free" clinical interview lasting 1-2 hours and full information was available from previous case-records and interviews with relatives. The final clinical diagnosis was made by the project psychiatrist responsible for the clinical work-up.

The patients formed part of a wider series in a family-heredity study. They were a random selection of all admissions to the University Psychiatric Clinic which serves the region of Zürich.[2] The clinical examination was completed within ten days of admission. There are 115 patients with diagnoses of functional psychoses (295 and 296); 52 males and 63 females. Mean age was 42.4 years (± 14.7; range 18-73). There had been a mean of 4.6 psychotic episodes including the present one (± 3.8; range 1-17; 23.5% in the first episode of psy-

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[1] We are indebted to the Office of Mental Health, WHO, for permission to use this instrument.

[2] We are indebted to the Director, Professor Dr. K. Ernst, for permission to interview the patients.

chosis) and a mean of 4.7 hospitalizations (± 4.4; range 1-24; 26.1% first hospitalization). The mean age at first onset of illness was 31.1 years (± 13.1; range 14-67; 45% between 21 and 30 years).

More than half of the patients (53.3%) were already receiving medication with neuroleptic or antidepressive drugs before the time of admission.

Results: Stage 1

Table 1 shows the clinical diagnosis (295 or 296) made by the project psychiatrist on the basis of the full clinical work-up, compared with the provisional classification resulting from the application of the CATEGO program to the PSE symptom-profiles. One case (1177) could not be evaluated by the CATEGO program because of insufficient data in the PSE and is therefore omitted.

The overall concordance is 82%, compared with an expected agreement, based on the marginal distributions, of 54%. The point-four-fold correlation (0.64) is very close to the Kappa coefficient (0.62).

Table 1. Diagnostic classification into affective and schizophrenic psychoses by project psychiatrist compared with reference classification based on PSE alone

Zürich diagnosis	CATEGO classification ICD 295	ICD 296 and 300.4	Total
ICD 295	66	19	85
ICD 296	1	28	29
Total	67	47	114

Chi-squared = 46.12, dfl, $p < .001$

$r_{pf} = 0.64$

Kappa = 0.62

Po (observed agreement) = 0.82

Pe (expected agreement) = 0.54

The degree of agreement on a diagnosis of schizophrenic psychosis (295) can be expressed as the number of agreed cases (66) divided by the total number of cases classified as schizophrenic by either technique (86); i. e. 0. 77. The equivalent concordance on a diagnosis of affective disorder is 28/48; 0. 58. Consideration of the off-diagonal cells shows that only one Zürich diagnosis of affective disorder is classified as schizophrenic by the CATEGO procedure whereas there are 19 cases in which a Zürich diagnosis of schizophrenic psychosis is accompanied by a CATEGO classification of affective disorder. If we expect that the distribution in the off-diagonal cells should be equal, there is a very highly significant difference between the observed figures ($\chi^2 = 16.2$, $p < .001$).

In other words, the Zürich clinicians are more likely than the reference procedure to diagnose schizophrenia and this accounts for virtually all the discrepancies in Table 1. The second stage of the analysis was designed to investigate various reasons for the difference.

Research: Stage 2

The 20 cases in which a discrepancy was evident in the first stage of the analysis and the one case (1177) where PSE information was insufficient for a CATEGO classification were re-evaluated by the senior investigator on the basis of the full history and psychopathology, and a Syndrome Check List (SCL) was completed.

It was clear that a principal area of disagreement was centred round the Zürich diagnosis of schizo-affective psychosis (295. 7). Fourteen cases were diagnosed in this way by the project psychiatrists but in only two cases was the CATEGO classification concordant. Special attention was therefore given to the 12 remaining discrepant cases. The Zürich criteria for the diagnosis are as follows:

(1) Presence of elated or depressed affect (or both), of the same quality and intensity found in affective psychoses.

(2) First rank symptoms of schizophrenia (or symptoms in the CATEGO "nuclear" syndrome).

(3) A phasic course of the illness in which schizophrenic, manic or depressive symptoms may appear separately in different episodes.

Following this clinical review by the senior investigator, three cases were re-allocated to another schizophrenic sub-group (295. 1 or 295. 2) but this did not affect the rate of disagreement in Table 1. Another three cases were re-classified as manic-depressive psychosis (296. 3). A fourth case had not been definitively diagnosed, in fact the Zürich diagnosis was 295. 7/296. 1, and on re-evaluation, it was thought that the schizophrenic component in the diagnosis was based upon a doubtful interpretation of a predominantly manic speech disorder. The rest of the clinical picture of this case was clearly manic. There had been former manic episodes but no history of depressive or schizophrenic symptoms. The diagnosis was therefore revised to 296. 1. Thus the number of discrepancies was reduced by four but the other discrepancies remained.

Table 2. Revised diagnostic classification into affective and schizophrenic psychoses by senior project psychiatrist compared with reference classification based on PSE plus SCL

Zürich diagnoses	CATEGO classification ICD 295	ICD 296 and 300.4	Total
ICD 295	83	-	83
ICD 296	1	31	32
Total	84	31	115

Twentyone SCL profiles were classified in London, using the CATEGO program. Table 2 shows the final concordance and discrepancy. The one case (1177) not classifiable on the PSE profile alone was concordantly allocated to the category of schizophrenic psychosis (295) on the basis of the SCL profile. Of the 19 cases classified by the Zürich psychiatrists as schizophrenic but by the CATEGO program as affective, four became concordant through the change of clinical diagnosis mentioned above, leaving 15 discrepancies. All these 15 cases were found to have had characteristic schizophrenic symptoms in previous episodes and thus by combination of PSE and SCL classes, were re-classified as schizo-affective.

The one remaining discrepancy (1147) is due to the fact that first rank as well as psychotic depressive symptoms were rated by the project psychiatrist, leading to a CATEGO classification of schizo-affective disorder (295.7), while the project diagnosis was depressive psychosis (296.2). On clinical re-evaluation, the senior investigator did not agree that first rank symptoms had been present. If they had been omitted from the PSE, the remaining symptom profile would have been concordantly classified as 296.2.

DISCUSSION

It has been found in earlier studies that the classification of the functional disorders based on PSE symptom-profiles alone is concordant with clinical diagnosis in about 80% of cases, as in the present series (Wing, Cooper & Sartorius, 1974). Adding information from the clinical history, in the form of SCL syndrome-profiles for significant previous episodes, improves the concordance further. In the present project, the 18% of discrepant cases became concordant in nearly all cases when SCL data were added, the few remaining discrepancies being resolved by a re-evaluation of the diagnosis by the senior investigator.

The main problem studied in this paper can therefore be resolved by saying that, in the present series as in the earlier ones, a clinical diagnosis can be matched by a standardized procedure based upon symptoms present either at the time of clinical interview during an acute episode or present during earlier episodes. In either case, the more key symptoms that are rated as present in the PSE or SCL, the more likely it is that there will be congruence between clinical diagnosis and CATEGO classification. The other elements thought to be important in diagnosis and not taken into account by a system such as PSE/SCL/CATEGO do not account for much of the variation.

It is important not to overgeneralize this conclusion. The reference classification is only as good as the symptom and syndrome profiles upon which it is based. In all the series so far studied, the clinical examinations have been undertaken by skilled psychiatrists, well-trained in the technical procedures necessary. Within these limits the reliability of rating PSE is known to be fairly high, although there are some unresolved technical difficulties in assessing reliability in international studies (WHO, 1973; Wing, Cooper & Sartorius, 1974). A study of CATEGO classifications based on SCL syndrome profiles, rating from the narrative case-histories of a 10% sample of cases in the International Pilot Study of Schizophrenia, showed that 81.3% were concordantly classified into schizophrenic and non-schizophrenic disorders (Skoda & Wing, in: Wing, Cooper & Sartorius, 1974). This is a remarkably high degree of concordance but only further studies of a similar kind will show whether it is attainable elsewhere. The material from which SCL ratings are made is, of course, much less standardized than the PSE, and validity may therefore be questionable, even if high reliability of rating is achieved.

We consider, however, that the present results provide a measure of support for the contention that much of the material needed for a diagnosis of the functional psychiatric disorders is present in the PSE and SCL profiles.

We have not attempted to consider the sub-classification of the schizophrenic and affective disorders. All the Zürich cases were placed into the two broad ICD categories, 295 and 296. The CATEGO procedure placed some of the former conditions into 297 (paranoid psychoses) and some of the latter into 300.4 (depressive neuroses). It is doubtful how far such diagnostic distinctions can be reliably made by clinicians although the CATEGO distinctions have proved very similar to clinical practice in certain centres (WHO, 1973; Wing, Nixon, von Cranach & Strauss, to be published). The CATEGO sub-classification of schizophrenia is not intended to match very closely the fourth figure sub-groups of the ICD, being based purely upon the hierarchical ordering of certain symptoms and not at all on considerations of onset, development or previous personality.

A word needs to be said on the subject of the value of first rank symptoms in discriminating between schizophrenic and manic psychoses (Wing & Nixon, 1975). In the present study, all but one of the patients rated as showing first rank symptoms were classified as schizophrenic both by the project psychiatrist and by the CATEGO procedure. The clinical diagnosis in the exceptional case was psychotic depression (296.2) and the reason for the discrepant CATEGO classification has already been discussed. Conversely, none of the 9 cases of mixed affective psychosis (296.3) and only one of the 20 cases of depressive psychosis (296.0 or 296.2) was rated as having

any first rank symptoms.

It is also worth remarking that schizo-affective psychosis (295. 7) was a common clinical diagnosis among the cases where the CATEGO classification changed following the addition of SCL data.

Finally we should like to emphasize the clinical value of instruments such as the PSE and SCL. They are useful in ensuring a thorough evaluation of the clinical condition, and the associated CATEGO classification is a helpful addition to clinical appraisal. However, it must be remembered that these procedures are intended only as technical aids; to help the psychiatrist in reaching decisions that must, in the last resort, be clinical and not mechanical.

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