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Further Developments of the 'Present State Examination' and CATEGO System

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Summary. Some further developments of the PSE and CATEGO system are reported. The shorter ninth revision of the PSE, together with its glossary of definitions of symptoms, has proved useful in skilled hands and certain sources of error in the eighth edition have been reduced. The Syndrome Check List and Aetiology Schedule have proved useful in decreasing the number of coding errors.

Key words: Diagnosis – Classification – Standard interview.

Introduction

The are five main stages at which unreliability or unrepeatability can enter into the process of psychiatric diagnosis. The first is the fundamental stage of defining symptoms. If clinicians adopt different definitions of important symptoms they can hardly expect to reach comparable diagnoses. The second is the stage of interviewing patients. Here the problem is one of adopting a standard procedure without it becoming rigid and mechanical. Assuming that these two problems can be overcome, and that the same symptom definitions and a fairly standard interviewing technique can be used, there is a third opportunity for unreliability to enter; at the stage of classification of symptoms. It is therefore necessary to lay down a set of classifying rules that will result in any given symptom profile always being allocated to the same class. The next hurdle arises at the point at which a decision has to be made as to whether other clinical information, in addition to that contained in the clinical examination, (for example, symptoms elicited in a previous episode) should also be used in arriving at a diagnosis. This decision should be made in a standard way. The problems of symptom definition and classification are similar to those arising from examining the patient's current condition, but the likelihood of unreliability is considerably greater. When the

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class arrived at from studying a previous episode is different to that derived from the present condition a further set of rules is required to decide whether they should be combined into one class and, if so, how. Finally, there is the fact that psychiatric classification is only partly based on descriptive syndromes; the presence or absence of aetiological factors is also important.

Theoretically, there are yet other opportunities for unreliability to creep in, notably in the use of information from laboratory investigations. However, these are not often crucial and if it were possible to reduce variation at the five stages already described we should be well on the way to achieving reliable diagnosis.

A technique (the Present State Examination, or PSE) for limiting variation at the first two stages—those of symptom definition and clinical interview—has already been adopted in the International Pilot Study of Schizophrenia (WHO, 1973) and the results have been reported in detail in Volume 1 of the report. Preliminary information has also been given concerning the CATEGO computer program, which incorporates a set of classifying rules, thus eliminating variation at stage three (Wing et al., 1974). Since then, further progress has been made by shortening the PSE from 360 to 140 items, each representing one symptom, modifying some of the items that gave rise to errors in rating, and constructing a glossary containing a detailed definition of each symptom. These developments have been described by Wing et al. (1974). The ninth revision of the PSE has been used in a number of further studies and the present paper describes some results suggesting that the PSE-CATEGO system, in trained hands, can be used to increase reliability still further at all five stages of the diagnostic process.

Three sets of results will be presented. The first describes the effect of introducing modifications into the ninth revision of the PSE designed to improve the precision of rating certain highly discriminating symptoms. The second deals with the use of the Syndrome Check List to help solve a common problem in diagnosing 'residual schizophrenia.' The third concerns the use of a technique intended to eliminate some coding errors when using etiological information to make a diagnosis.

Discriminating Symptoms in Schizophrenia

One of the simplest ways of making a diagnosis is to recognise the presence of a symptom that is very highly discriminating for some particular condition. Edwards (1971), for example, pointed out that pain a few seconds after swallowing solid food is such a symptom; the diagnosis (oesophageal stricture) is virtually contained in this description. The first-rank symptoms of Kurt Schneider (1959, 1971) are thought by many clinicians to come into this category, if organic conditions can be excluded. It was shown in Volume 1 of the IPSS report that the nuclear syndrome of first rank symptoms, as defined in the CATEGO system, was accompanied in 446 cases out of 469 (95%) by a diagnosis of schizophrenia. This is certainly highly discriminating but the value of the discrimination is limited by the fact that 13 of the 23 discrepancies occurred in conditions that were diagnosed clinically as mania. Since there were only 79 cases of mania altogether, this represents quite a high misclassification (16.5%) in one particular diagnostic group, even though the group is a small one. Several explanations were

considered, of which the most likely, on the evidence available, appeared to be that many of the discrepancies were due to clinicians rating first-rank symptoms as present when in fact they were absent (Wing and Nixon, 1975).

The relevant items in the ninth revision of the PSE have been much more tightly defined. This revision has now been used in two independent studies involving patients diagnosed as suffering from manic conditions and it is possible to make a new test of the discriminating power of the nuclear syndrome. One series was collected in Edinburgh. All the cases selected were diagnosed as manic or depressed (Murray, personal communication). Of the 20 manic conditions, none was rated as having first-rank symptoms. Of the 43 depressive conditions, only two (4.7%) were said to have first-rank symptoms.

The other series consisted of a random sample of admissions to the area psychiatric hospital in Munich during the course of 4 months (von Cranach and Strauss, in preparation). Patients under 20 and over 59 years of age were excluded, otherwise the series was unselected. Out of 108 patients with diagnoses in the range of the functional psychoses and neuroses, 12 were classified as manic (296.1, 296.3). None of these was rated positively on the nuclear syndromes; nor were any of the 47 patients diagnosed as suffering from depressive conditions (296.0, 296.2, 298.0, 300.4). Conversely, 14 patients were rated as showing symptoms in the nuclear syndrome and all were diagnosed as schizophrenic (295.3).

A further study included a random selection of patients with functional psychoses admitted to the University Clinic in Zürich (Scharfetter et al., 1976). This used the WHO version of the PSE. Even so, all but one of the 44 patients rated as showing first-rank symptoms were diagnosed as schizophrenic (mostly 295.3). The diagnosis in this exceptional case was psychotic depression. None of the nine 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.

Thus, summing the relevant results of the three series, there were three cases in which first-rank symptoms were rated as present, out of 151 patients with manic or depressive conditions (2.0%). Conversely, three of those with such symptoms were not given diagnosis of schizophrenia (5.0%).

Another modification introduced into the ninth revision of the PSE because of experience in the IPSS was a redefinition of auditory hallucinations in order to distinguish between varieties common in schizophrenia and others found more rarely in the affective disorders. This modification too appears to have been successful in that no discrepancies due to this confusion have occurred in the three subsequent series.

It has not yet proved possible to test the third major modification, which was to introduce a separate rating of subcultural delusions and hallucinations.

The Use of the Syndrome Check List

The Munich series mentioned above was also used to test the use of the Syndrome Check List and the Aetiology Schedule. Altogether 108 patients were given

Table 1. Diagnosis made by project psychiatrists in Munich compared with provisional CATEGO 'diagnosis'

Munich diagnosis	CATEGO classification (PSE only)								Total
	295	297 etc.	296.1 etc.	296.2 etc.	300.4 etc.	300.0 etc.	299	317	
295.6	5	3	—	6	2	1	1	—	18
Other 295	7	2	1	2	—	—	—	—	12
297; 298.2; 298.3	3	5	1	—	—	—	—	1	10
296.1,3; 298.1	—	—	10	2	—	—	—	—	12
296.0,2; 298.0	—	1	—	11	1	—	—	—	13
300.4,5; 307	—	—	—	8	25	—	—	1	34
300.0,2,3	—	—	—	—	2	3	—	—	5
317 (minimal)	—	—	—	—	1	—	—	3	4
Total	15	11	12	29	31	4	1	5	108

diagnoses of functional psychoses or neuroses, or of minimal psychiatric disorder. When the PSE schedules had been processed using the CATEGO program, the agreement on classification into four broad groups was 75%. The details are shown in Table 1.

Considering only the agreement on diagnosis of schizophrenia or paranoid psychosis versus other conditions the degree of concordance is very high. Omitting, for the moment, cases given a project diagnosis of 295.6, only five out of those classified by the two project psychiatrists as suffering from schizophrenic or paranoid psychoses were classified differently by the CATEGO program on the basis of PSE data alone. Syndrome Check Lists were completed by project psychiatrists for the most significant episode of admission preceeding the present one. These schedules were then processed using the CATEGO program and combined with the PSE classification as suggested by Wing et al. (1974). The result was as follows:

Case No.	Project diagnosis	PSE class	SCL class	Combined class
124	295.3	D+ 296.2	P?	296.2
056	295.4	D+ 296.2	P+	297
174	295.7	M+ 296.1	S+	295.3
150	297.0	M+ 296.1	P?	296.1
177	298.2	X 317	D?	296.9

The addition of the extra material makes a correction towards the project diagnosis in two cases but not in the other three. It is worthwhile considering the three remaining discrepancies, since only by taking care over individual cases can

we hope to achieve a concordance that is not only statistically impressive but clinical meaningful. Brief case histories are given in Appendix 1. It can be seen that there are genuine difficulties in diagnosis.

The only other major discrepancy is a case where the project diagnosis was psychotic depression (296.2) and the PSE classification was 297. A brief case summary is given in Appendix 1.

These four remaining discrepancies, out of a total of 90 cases (omitting those with a diagnosis of residual schizophrenia, 295.6) represent a high and encouraging degree of agreement (95.6%) as to the line of division between schizophrenic and paranoid psychoses and other functional disorders.

So far as the 18 cases diagnosed as residual schizophrenia, 295.6, are concerned, there are 10 discrepancies compared with the PSE classification. Volume 2 of the IPSS report (WHO, 1976), which deals with the 2-year follow-up, discusses a similar problem. Is some one who has only affective or minor symptoms still to be given a diagnosis of 'schizophrenia' because these symptoms are regarded as somehow dependent on the original diagnosis, or should a second diagnosis be made? In the Munich series, only eight out of 18 with a project diagnosis of 295.6 still showed florid schizophrenic or paranoid symptoms at the time of key admission. Nine of the remaining 10 had affective symptoms. Syndrome Check Lists were completed in all 10 cases and in nine of these the combined classification became one of schizophrenic psychosis, the tenth being allocated to the category of paranoid psychosis. Thus a dilemma that could potentially lead to much unreliability was fairly easily resolved.

The Use of the Aetiology Schedule

Apart from the 108 cases in the Munich series given diagnoses of functional psychoses or neuroses by the project psychiatrists, there were 68 with other

Table 2. Classification based on information from the PSE and aetiology schedule compared with provisional CATEGO 'diagnosis'

CATEGO classification (PSE + AS)	291 Alcoholic psychoses	303 Alcohol addictions	304 Drug abuse	301 Personality disorders	Total
295.3 etc.	—	—	1	—	1
296.1 etc.	—	—	1	—	1
296.2 etc.	—	—	—	1	1
300.4	—	—	—	2	2
300.0 etc.	—	1	—	—	1
291	6	2	—	—	8
303	2	30	—	—	32
304	—	—	12	1	13
301	—	—	—	9	9
Total	8	33	14	13	68

diagnoses. The project psychiatrists completed an Aetiology Schedule for each case and the information contained in these, together with the PSE classification, was combined according to the instructions given by Wing et al. (1974). The resulting classification is shown in Table 2. Considering that only coding errors can definitely be said to have been eliminated by this exercise, since no attempt was made to lay down rules for deciding how aetiological factors should be rated as present, the degree of concordance is remarkably high. This suggests that it may be worth undertaking further work even in this perennially difficult area.

Discussion

The standardised clinical techniques pioneered in the IPSS have been developed further with a fair degree of success and there is evidence that, so far as specially trained psychiatrists are concerned, a substantial proportion of the variability in allocating cases to a diagnostic class can be brought under control, at least for scientific purposes. In contrast to other methods of statistical data analysis, the PSE-CATEGO system attempts to mimic (in more precise and reliable fashion) the ordinary processes of clinical diagnosis. It therefore has the same advantages and the same disadvantages. Once the basic documents have been completed, a classification can be made that has many of the features of a diagnosis and carries similar implications, both practically and scientifically. The system is not dependent on the relationship observed between items of information collected in one particular project as, for example, cluster analyses or multivariate analyses are. On the other hand, the myriad decision points incorporated into the system, although precisely specified and repeatable, are arbitrary in the sense that all clinical decisions are. The system simply pares down the clinical practice of psychiatrists to what can be communicated with a fair degree of exactness. The system can be used to compare the frequency of psychiatric disorders in different hospital populations. This is no mean achievement when we consider the literature, but it cannot be used to throw light on questions of validity. It can only be used to make tests of validity possible.

One very obvious limitation on the system as so far reported is the fact that it has no lower limit. A rating of (1) on depressed affect (i.e., a moderate or a fluctuating degree of depression during the previous month), even if every other PSE item is rated absent, will still be sufficient for a classification of depressive disorder (300.4). Such a situation rarely arises in an in-patient or even in an out-patient series. Something like it does, however, quite frequently occur in a series of people drawn from the general population, the vast majority of whom have never been referred to a psychiatrist. One of the major requirements for epidemiological work is a technique whereby the psychiatric morbidity of various population samples can be compared, and given meaning in terms of a relationship to the morbidity observed in samples of people referred to psychiatrists. A method of reliably establishing a cut-off point above which standard categorisation procedures could be applied would greatly advance epidemiological research. Such a method has been developed for the PSE-CATEGO system and the results will be reported elsewhere (Wing, 1976; Wing et al.,1977).

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Appendix 1

Brief Case Histories of Patients Whose Project Diagnosis and CATEGO Classification Remain Discrepant after the Addition of Data from the Syndrome Check List

No. 124

Project diagnosis: 295.3

PSE class, D+: 296.2

(Based on interview during 6th admission, 1974)

SCL class, P?: 297.9

(Based on first admission, 1966)

} combined PSE + SCL class: 296.2

This lady was born in 1936. There is no history of psychiatric illness in the family. At the age of 20 she married a working-class man who was shortly afterwards admitted to hospital for long periods of time because of tuberculosis. She has six children, the family is very poor and their housing conditions are bad.

First admission (1966): a few days before admission she suddenly started wandering away from home and neglecting her household duties. She was found wandering and taken to hospital by the police. On examination she was overactive, verbally aggressive, showed flight of ideas and lack of concentration, and had "paranoid ideas" (the nature of which is not specified in the case notes). She recovered completely within 1 week, to the surprise of the doctors. The final diagnosis was schizophrenia.

Second admission (1966): after discharge she again began to neglect her household and her children. (No further details given.) On examination, she appeared self-neglected, was continuously laughing, did not answer questions, reported feeling unusually happy. She had a conviction that the children were not hers (no further details). Again she recovered with 2 weeks. The diagnosis was again schizophrenia.

Third admission (1967): suddenly, a few days before admission she felt depressed and thought that mankind would die. She was decribed as crying continuously and very agitated. No further description in the notes. She improved within a few days. Diagnosis: schizophrenia.

Fourth admission (1967): (there are only a few sentences in the notes) she appeared perplexed, did not answer questions. Again she recovered quickly. Diagnosis: schizophrenia.

Fifth admission (1967): she was admitted because she had been at home in bed for weeks, doing nothing and not caring for the children. On admission she was in a stupor. No further relevant details in notes and no description of mood. She recovered within two weeks. Diagnosis: schizophrenia.

Sixth admission (1974): for the previous 6 years she had been at home, caring for the family and apparently completely well. A few fays before admission she became acutely ill. On admission she reported feeling anxious, thought she had to die, and was hopeless. She stopped eating as she thought the food was poisoned. She said she could smell the stench of a corpse. Again she recovered completely after 3 weeks.

Comments. The project psychiatrists, after making this summary, thought that their diagnosis was wrong. They had not then read the hospital case-notes and were able to rely only on the patient's history, which was very incomplete. The correct diagnosis would appear to be mixed affective psychosis, 296.3. The PSE classification therefore requires no change and the SCL contained no useful information.

No. 150

Project diagnosis: 297.0
PSE class, M+: 296.1
(Based on interview during third admission, 1974)
SCL class, P? 297.9
(Based on second admission, 1972)

→ combined PSE + SCL class: 296.1

This lady was born in 1928. There was no psychiatric history in the family. Early development was normal and she completed grammar school. At University she studied philosophy and psychology but dropped out early and worked as a secretarial assistant, also helping with technical draughtsmanship, in scientific institutes. The social care agency in Munich helps her because she frequently changes both house and job, and she has recently been living in various hostels. She is completely isolated and has no friends or social contacts.

First admission 1967: she spent 10 days in a mental hospital but no details are available as to clinical condition or reason for admission.

Second admission 1972: on admission she appeared very suspicious and her affect was reported as inadequate (no details given in notes). After being very evasive she finally reported that people from the street were breaking into her flat and stealing her belongings, and that microphones had been hidden in the walls. In the streets men in bullet-proof clothing were watching her, talking about her and making signs referring to her. She thought that she was being observed because people thought she was a lesbian. Hospital diagnosis: schizophrenia.

Third admission 1974: 2 weeks before admission a court order was made placing her affairs under legal protection (no reasons given in case notes). She then shut herself into her flat and finally the neighbours called the police who brought her to hospital.

In hospital, she was described as being very evasive but otherwise normal. The doctors thought that the delusions described earlier were still present but she did not report them. Hospital diagnosis: schizophrenia.

Comment. This patient clearly had a chronic paranoid illness and the project diagnosis is correct. The PSE classification was based on the negative ratings of delusions (which she denied) and positive behavioural ratings of pressure of speech and hypomanic affect. The SCL ratings did not reflect the richness of the paranoid delusions and the classification of P? was not sufficient to change the PSE classification. If the SCL had been P+, the combined classification would have been paranoid psychosis (297).

No. 177

Project diagnosis: 298.2
PSE class, XN: 317
(Based on interview during admission in 1974)
SCL class, D?: 269.9
(Based on present episode of illness)

→ Combined PSE + SCL class: 296.9

This lady was born in 1932. There is no history of family illness. Her development was normal and she has become a highly skilled technical draughtsman. She is unmarried, but had a relationship lasting 10 years with a married architect that broke up several years ago. She has a small flat, likes music and art, and has a few good friends.

Two days before admission in 1974 she felt nervous, could not sleep and complained of lack of concentration. She was found by the police running naked through the streets and brought to hospital. Here, on admission she was disoriented, stuporous, and mute. When seen at PSE interview, she was almost completely normal and could not remember what happened during the 24 h when she had been disturbed.

According to the case notes, 8 days after admission, she began to remember what happened. She reported that 2 days before admission she felt that everything around her was unreal, that

colours were somehow different and that objects seemed to look very far away. She felt anxious but could not remember that she had run naked through the streets.

There was no history of drug or alcohol abuse and no drugs had been taken before admission. There were no organic signs on physical examination or EEG. Hospital diagnosis: schizophrenic episode.

Comment. The discrepancy between PSE class and project diagnosis was due to the fact that the patient had almost recovered by the time the examination was made but was unable to remember what had occurred. The symptoms rated in the SCL were mostly behavioural and the classification of 296.9 is a feasible alternative to the diagnosis, but both can be defended.

No. 044

Project diagnosis: 296.2 PSE class, DP+: 297 (Based on interview during admission in 1974) SCL class, DPPD: 297 (Based on same admission)	Combined PSE + SCL class: 297

This man was born in 1933. There is no history of psychiatric illness in the family. He had tuberculosis at the age of 18 and spent several months in hospital.

He developed normally, became a civil servant, and worked in a tax office. He was described as having an extremely anancastic, obsessional personality, devoted to his figures. At the age of 34 he spent several weeks in a general hospital with multiple somatic complaints but no abnormality was found. During this time he felt irritable, aggressive, and nervous, but did not report depression. This episode lasted nearly 6 months.

A week before admission he started having guilt feelings, thought he had made some mistakes in his work and that he deserved to be dismissed. He thought that everybody in his office knew about these mistakes and became convinced that his colleagues were following and observing him continuously. He saw them making signs referring to him, thought he was the target of an experiment, that he was influenced by telepathic forces through the telephone and that his superiors could read his thoughts. He felt guilty about his supposed mistakes, was anxious to be punished, nervous, could not sleep, and felt aggressive, telling his wife to hide all knives in the house. He heard a noise in his ears 'wum, wum,' repeated very often, which he thought was a sign that he was being influenced.

He recovered completely within 5 weeks.

Comment. The project diagnosis of 296.2 can certainly by defended although the nature of the delusions is not typical. There were a number of discrepancies of a similar kind reported in Volume 1 of the IPSS. The diagnosis is likely to remain difficult.

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